Appendix A State Reuse Regulations and Guidelines

Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
Arizona	Class A reclaimed water: Secondary treatment, filtration and disinfection Chemical feed facilities required to add coagulants or polymers if necessary to meet turbidity criterion Turbidity 2 NTU (24 hour average) 5 NTU (not to exceed at any time) Fecal coliform none detectable in 4 of last 7 daily samples 23/100 ml (single sample maximum) Class B reclaimed water: Secondary treatment and disinfection Fecal coliform 200/100 ml (not to exceed in 4 of the last 7 daily samples) 800/100 ml	Case-by-case basis			Application rates based on either the water allotment assigned by the Arizona Department of Water Resources (a water balance that considers consumptive use of water by the crop, turf, or landscape vegetation) or an alternative approved method			Class A reclaimed water may be used for residential landscape irrigation, schoolground landscape irrigation, toilet and urinal flushing, fire protection systems, commercial closed-loop air conditioning systems, vehicle and equipment washing, and snowmaking Class B reclaimed water may be used for landscape impoundment, construction uses, and street cleaning Application methods that reasonably preclude human contact with reclaimed water will be used when irrigating

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements (single sample maximum)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances (1) (2)	Other
Arkansas	Secondary treatment and disinfection	As required by regulatory agency		Based on water balance using divisional average annual 90 percentile rainfall	Hydraulic - 0.5 to 4.0 in/wk Nitrogen - percolate nitrate-nitrogen not to exceed 10 mg/l	Required One well upgradient One well within site One well down- gradient More wells may be required on a case-by-case basis	Determined on a case-by-case basis	
California	Disinfected tertiary recycled water-oxidized, coagulated (not required if membrane filtration is used and/or turbidity requirements are met), filtered, disinfected Total coliform - 2.2/100 ml (7-day median) - 23/100 ml (not to exceed in more than one sample in any 30-day period) - 240/100 ml (maximum any one sample)	Total coliform - sampled at least once daily from the disinfected effluent Turbidity - continuously sampled following filtration	Warning alarms Back-up power source Multiple treatment units capable of treating entire flow with one unit not in operation or storage or disposal provisions Emergency storage or disposal: short-term, 1 day; long-term, 20 days Sufficient number of qualified personnel				No irrigation within 50 feet of any domestic water supply well unless certain conditions are met	Includes landscape irrigation of parks, playgrounds, schoolyards, residential lawns, and unrestricted access golf courses, as well as use in decorative fountains Also allows reclaimed water use for toilet and urinal flushing, fire protection, construction uses, and commercial car washing

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State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
	Turbidity requirements							
	for wastewater							
	that has been							
	coagulated							
	and passed							
	through natural							
	undisturbed							
	soils or a bed							
	of filter media							
	- maximum							
	average of							
	2 NTU within a							
	24-hour period							
	- not to exceed							
	5 NTU more							
	than 5 percent of the time							
	within a							
	24-hour period							
	- maximum of							
	10 NTU at any							
	time							
	Turbidity							
	requirements							
	for wastewater							
	passed							
	through							
	membrane							
	- not to exceed							
	0.2 NTU more							
	than 5 percent of the time							
	within a							
	24-hour period							
	- maximum of							
	0.5 NTU at any							
	time							

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Colorado	Landscape irrigation excluding single-family residential: Oxidized, filtered and disinfected E. coli - 126/100 ml (monthly average) - 235/100 ml (single sample maximum in any calendar month) Turbidity - not to exceed 3 NTU (monthly average) - not to exceed 5 NTU in more than 5 percent of the individual analytical results (any calendar month) Single-family residential: Oxidized, coagulated, clarified, filtered, and disinfected Total coliform - 2.2/100 ml (7-day median)	Treaters: Quality of reclaimed domestic wastewater produced and delivered at the point of compliance Applicators: Total volume of reclaimed domestic wastewater applied per year or season The maximum monthly volume applied Each location with the associated acreage where reclaimed domestic wastewater was applied			Application rates shall protect surface and groundwater quality and irrigation shall be controlled to minimize ponding		Landscape irrigation excluding single-family residential: No impoundment or irrigation of reclaimed water within 100 feet of any well used for domestic supply unless, in the case of impoundment, it is lined with a synthetic material with a permeability of 10-6 cm/sec or less Single-family residential: No irrigation of reclaimed water within 500 feet of any domestic supply well No irrigation of reclaimed water within 100 feet of any irrigation well	

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Table A-1. Unrestricted Urban Reuse

State W	Reclaimed Vater Quality and Treatment equirements 23/100 ml any sample)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances (1) (2)	Other
Delaware • A tr u o o c c c fil fi d 1 • 1 • 1 • 1 e e • F	Advanced reatment using oxidation, clarification, clarification, illeration, and disinfection illeration may illeration to exceed 5 NTU Fecal coliform 20/100 ml	Continuous online monitoring for turbidity before application of the disinfectant Continuous online monitoring of residual disinfection concentrations Parameters which may require monitoring include volume of water applied to spray fields, BOD, suspended solids, fecal coliform bacteria, pH, COD, TOC, ammonia nitrogen, nitrate nitrogen, total Kjeldahl nitrogen, total phosphorus, chloride, Na, K, Ca, Mg, metals, and priority pollutants Parameters		Storage provisions required either as a separate facility or incorporated into the pretreatment system Minimum 15 days storage required unless other measures for controlling flow are demonstrated Must determine operational, wet weather, and water balance storage requirements Separate offline system for storage of reject wastewater with a minimum capacity equal to 2 days average daily design flow required	Maximum design wastewater loadings limited to 2.5 in/wk Maximum instantaneous wastewater application rates limited to 0.25 in/hour Design wastewater loading must be determined as a function of precipitation, evapotranspiration, design percolation rate, nitrogen loading and other constituent loading limitations, groundwater and drainage conditions, and average and peak design wastewater flows and seasonal fluctuations	Required One well upgradient of site or otherwise outside the influence of the site for background monitoring One well within wetted field area of each drainage basin intersected by site Two wells downgradient in each drainage basin intersected by site One well upgradient and One well upgradient and One well downgradient of the pond treatment and storage facilities in each drainage basin intersected by site May require measurement of depth to groundwater,	Determined on a case-by-case basis	Regulations pertain to sites unlimited to public access

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
		and sampling frequency determined on case-by-case basis				pH, COD, TOC, nitrate nitrogen, total phosphorus, electrical conductivity, chloride, fecal coliform bacteria, metals, and priority pollutants • Parameters and sampling frequency determined on a case-by-case basis		
Florida	Secondary treatment with filtration and high-level disinfection Chemical feed facilities to be provided 20 mg/l CBOD₅ (annual average) 5 mg/l TSS (single sample) to be achieved prior to disinfection Total chlorine residual of at least 1 mg/l after a minimum	Parameters to be monitored and sampling frequency to be identified in wastewater facility permit Minimum schedule for sampling and testing based on system capacity established for flow, pH, chlorine residual, dissolved oxygen, suspended solids, CBOD ₅ , nutrients, and	Class I reliability - requires multiple or back-up treatment units and a secondary power source Minimum reject storage capacity equal to 1-day flow at the average daily design flow of the treatment plant or the average daily permitted flow of the reuse system, whichever is	At a minimum, system storage capacity shall be the volume equal to 3 times the portion of the average daily flow for which no alternative reuse or disposal system is permitted Water balance required with volume of storage based on a 10-year recurrence interval and a minimum of 20	Site specific Design hydraulic loading rate - maximum annual average of 2 in/wk is recommended Based on nutrient and water balance assessments	Required One upgradient well located as close as possible to the site without being affected by the site's discharge (background well) One well at the edge of the zone of discharge down-gradient of the site (compliance well) One well downgradient	To feet to potable water supply wells To feet from reclaimed water transmission facility to public water supply well Low trajectory nozzles required within 100 feet of outdoor public eating, drinking, and bathing facilities 100 feet from indoor aesthetic	Includes use of reclaimed water for irrigation of residential lawns, golf courses, cemeteries, parks, playgrounds, schoolyards, highway medians, and other public access areas Also includes use of reclaimed water for toilet flushing, fire protection, construction

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Table A-1. Unrestricted Urban Reuse

Wa and State Re	Reclaimed Reclaimed ater Quality Water Monitoring equirements Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
co 15 pe flo • Fe - c pe pe sa de - 2 (si	fecal coliform Continuous on-line monitoring of turbidity prior to disinfection Continuous on-line monitoring of turbidity prior to disinfection Continuous on-line monitoring of turbidity prior to disinfection Continuous on-line monitoring of total chlorine residual or	less • Minimum system size of 0.1 mgd (not required for toilet flushing and fire protection uses) • Staffing - 24 hrs/day, 7 days/wk or 6 hrs/day, 7 days/wk with diversion of reclaimed water to reuse system only during periods of operator presence	years of climatic data Not required if alternative system is incorporated into the system design to ensure continuous facility operation Existing or proposed lakes or ponds (such as golf course ponds) are appropriate for storage if it will not impair the ability of the lakes or ponds to function as a stormwater management system Aquifer storage and recovery allowed as provision of storage		from the site and within the zone of discharge (intermediate well) One well located adjacent to unlined storage ponds or lakes Other wells may be required depending on site-specific criteria Quarterly monitoring required for water level, nitrate, total dissolved solids, arsenic, cadmium, chloride, chromium, lead, fecal coliform, pH, and sulfate Monitoring may be required for additional parameters based on site-specific conditions and groundwater quality	features using reclaimed water to adjacent indoor public eating and drinking facilities • 200 feet from unlined storage ponds to potable water supply wells	dust control, vehicle washing and aesthetic purposes Tank trucks can be used to apply reclaimed water if requirements are met Cross-connection control and inspection program required

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State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements be monitored by facilities ≥ 100,000 gpd	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾ quality	Setback Distances (1) (2)	Other
Georgia	Secondary treatment followed by coagulation, filtration, and disinfection for mg/I BOD for mg/I TSS Fecal coliform 23/100 ml (monthly average) 100/100 ml (maximum any sample) pH 6 - 9 Turbidity not to exceed 3 NTU prior to disinfection Detectable disinfectant residual at the delivery point	Continuous turbidity monitoring prior to disinfection Weekly sampling for TSS and BOD Daily monitoring for fecal coliform Daily monitoring for pH Detectable disinfection residual monitoring	Multiple process units Ability to isolate and bypass all process units System must be capable of treating peak flows with the largest unit out of service Equalization may be required Back-up power supply Alarms to warn of loss of power supply, failure of pumping systems, failure of disinfection systems, or turbidity greater than 3 NTU	Reject water storage equal to at least 3 days of flow at the average daily design flow One of the following options must be in place to account for wet weather periods - sufficient storage onsite or at the customer's location to handle the flows until irrigation can be resumed - additional land set aside that can be irrigated without causing harm to the cover crop - obtain NPDES permit for all or part of the flow			Determined on a case-by-case basis	
Hawaii	R-1 water:	Daily flow	Multiple or	 20 days 	Design	Required	R-1 water:	R-1 water car

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State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances (1) (2)	Other
	Oxidized, filtered, and disinfected Fecal coliform — 2.2/100 ml (7-day median) — 23/100 ml (not to exceed in more than one sample in any 30-day period) — 200/100 ml (maximum any one sample) Inactivation and/or removal of 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus Effluent turbidity not to exceed 2 NTU Chemical pretreatment facilities required in all cases where granular media filtration is used; not required for facilities using membrane filtration	monitoring Continuous turbidity monitoring prior to and after filtration process Continuous measuring and recording of chlorine residual Daily monitoring of fecal coliform Weekly monitoring of BOD ₅ and suspended solids	standby units required with sufficient capacity to enable effective operation with any one unit out of service Alarm devices required for loss of power, high water levels, failure of pumps or blowers, high head loss on filters, high effluent turbidity, loss of coagulant or polymer feed, and loss of chlorine residual Standby power source required for treatment plant and distribution pump stations	storage required unless it can be demonstrated that another time period is adequate or that no storage is necessary • Storage requirements based on water balance using at least a 30-year record • Reject storage required with a volume equal to 1 day of flow at the average daily design flow • Emergency system storage not required where an alternate effluent disposal system has been approved	application rate determined by water balance	Groundwater monitoring system may consist of a number of lysimeters and/or monitoring wells depending on site size, site characteristics, location, method of discharge, and other appropriate considerations One well upgradient and two wells downgradient for project sites 500 acres or more One well within the wetted field area for each project whose surface area is greater than or equal to 1,500 acres One lysimeter per 200 acres One lysimeter for project sites that have greater than 40 but less than	Minimum of 50 feet to drinking water supply well Outer edge of impoundment at least 100 feet from any drinking water supply well R-2 water: For spray irrigation applications, 500 feet to residence property or a place where public exposure could be similar to that at a park, elementary school yard or athletic field Minimum of 100 feet to any drinking water supply well Outer edge of impoundment at least 300 feet from any drinking water supply well	be used for spray Irrigation of golf courses, parks, elementary schoolyards, athletic fields, landscapes around some residential property, roadside and median landscapes, landscape impoundments with decorative fountain, and decorative fountains R-1 water can also be used for flushing toilets and urinals, fire fighting and washing yards, lots and sidewalks R-2 water can be used as source of supply for landscape impoundments without decorative fountain and construction uses

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	Theoretical chlorine contact time of 120 minutes and actual modal contact time of 90 minutes throughout which the chlorine residual is 5 mg/l R-2 water: Oxidized and disinfected Fecal coliform - 23/100 ml (7-day median) - 200/100 ml (not to exceed in more than one sample in any 30-day period) Theoretical chlorine contact time of 15 minutes and actual modal contact time of 10 minutes throughout which the chlorine residual is 0.5 mg/l					200 acres Additional lysimeters may be necessary to address concerns of public health or environmental protection as related to variable characteristics of the subsurface or of the operations of the project		If alternative application methods are used, such as subsurface, drip or surface irrigation, a lesser quality reclaimed water may be suitable R-2 water used in spray irrigation will be performed during periods when the area is closed to the public and the public is absent from the area, and end at least 1 hour before the area is open to the public Subsurface irrigation may be performed at any time
Idaho	Oxidized,							 Includes

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	coagulated, clarified, filtered, and disinfected • Total coliform - 2.2/100 ml (7-day median)							irrigation of parks, playgrounds, schoolyards and other areas where children are more likely to have access or exposure Irrigation to be accomplished during periods of non-use
Illinois	Two-cell lagoon system with tertiary sand filtration and disinfection or mechanical secondary treatment with disinfection			Minimum storage capacity equal to at least 150 days of wastewater at design average flow except in southern Illinois areas where a minimum of 120 days of storage capacity to be provided Storage can be determined based on a rational design that must include capacity for the wettest year with a 20-year	Based on the limiting characteristic of the treated wastewater and the site Balances must be calculated and submitted for water, nitrogen, phosphorus, and BOD	Required One well upgradient for determining background concentrations Two wells downgradient in the dominant direction of groundwater movement Wells between each potable water well and the application area if within 1,000 feet Monitoring of nitrates, ammonia nitrogen, chlorides, sulfates, pH, total dissolved	200 feet to residential lot lines	

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State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements return frequency	Loading Rates ⁽¹⁾	Groundwater Monitoring (1) solids, phosphate, and coliform bacteria	Setback Distances ^{(1) (2)}	Other
Indiana	Secondary treatment and disinfection 10 mg/l BOD ₅ 5 mg/l TSS prior to disinfection (24 hour average) Fecal coliform no detectable fecal coliform (7-day median) 14/100 ml (single sample) pH 6 - 9 Total chlorine residual after a minimum contact time of 30 minutes at least 1 mg/l (if chlorination) is used for disinfection)	Daily monitoring of TSS, coliform, and chlorine residual Weekly monitoring of BOD and pH Monthly monitoring of total nitrogen, ammonium nitrogen, nitrate nitrogen, phosphorus, and potassium Annual monitoring of arsenic, cadmium, copper, lead, mercury, nickel, selenium, and zinc	Alternate power source required	Minimum of 90 days effective storage capacity required	Maximum hydraulic loading rate of 2 in/week		200 feet to potable water supply wells or drinking water springs 300 feet to any waters of the state 300 feet to any residence	Pertains to land with a high potential for public exposure
Kansas	Secondary treatment with filtration and disinfection for irrigation of areas with a high probability of body contact			Storage provided to retain a minimum of 90 days average dry weather flow when no discharge to surface water is available	Maximum daily application rate of 3 in/ac/day Maximum annual application rate of 40 in/acre Based on soil and crop moisture	Site specific May be required	None required	Projected uses include irrigation of golf courses or public parks with a low probability of body contact Public access prohibited

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State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾ and/or nutrient	Groundwater Monitoring ⁽¹⁾	Setback Distances (1) (2)	Other during and 8
					requirements of selected crop			hours after irrigation
Massachusetts	Toilet flushing: • Secondary treatment with filtration (possibly) and disinfection • pH 6 - 9 • 30 mg/l BOD₅ • Turbidity - 5 NTU (not to exceed at any time) • Fecal coliform - 100/100 ml (single sample) • 10 mg/l TSS • 10 mg/l total nitrogen • Class I groundwater permit standards (SDWA Drinking Water Standards)	Toilet flushing: pH - weekly or daily BOD - weekly Turbidity - continuous monitoring prior to disinfection Fecal coliform -once per week Disinfection UV intensity - daily or chlorine residual - daily TSS - weekly Nitrogen - twice per month Permit standards - variable testing requirements	EPA Class I Reliability standards may be required Two independent and separate sources of power Unit redundancy Additional storage	Immediate, permitted discharge alternatives are required for emergency situations and for non-growing season disposal				The use of reclaimed water for toilet flushing is allowed at commercial facilities where public access to the plumbing is not allowed
Montana	Oxidized, clarified, coagulated, filtered, and disinfected Fecal coliform - 2.2/100 ml (7-day median) - 23/100 ml (single sample)	Effluent to be monitored on a regular basis to show the biochemical and bacteriological quality of the applied wastewater			Nitrogen and hydraulic loadings determined based on methods in EPA Manual 625/1-81-013 Hydraulic loading must	Determined on a case-by-case basis Consideration is given to groundwater characteristics, past practices, depth to groundwater,	100 feet to any water supply well Distance to surface water determined on a case-by-case basis based on quality of effluent and	Includes Iandscape irrigation of parks, playgrounds, schoolyards, unrestricted golf courses, and other areas where

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	- 2 NTU (average) - 5 NTU (not to exceed more than 5 percent of the time during any 24- hour period)	frequency to be determined on a case-by- case basis			the wettest year in ten years	practices, etc.	disinfection	similar access or exposure
Nevada	At a minimum, secondary treatment with disinfection 30 mg/l BOD ₅ Fecal coliform - 2.2/100 ml (30-day geometric mean) - 23/100 ml (maximum daily number)						None required	Uses include irrigation of cemeteries, golf courses, greenbelts, parks, playgrounds, or commercial or residential lawns
New Jersey	Fecal Coliform - 2.2/100 ml (7-day median) - 14/100 ml (maximum any one sample) Minimum chlorine residual - 1.0 mg/l after 15-minute contact at peak hourly flow Alternative methods of disinfection, such as UV and ozone,	Continuous on-line monitoring of chlorine residual produced oxidant at the compliance monitoring point For spray irrigation, chlorination levels for disinfection should be continually evaluated to		Not required when another permitted reuse system or effluent disposal system is incorporated into the system design If system storage ponds are used, they do not have to be lined Reject storage ponds shall be lined or sealed	Hydraulic loading rate - maximum annual average of 2 in/wk but may be increased based on a site-specific evaluation The spray irrigation of reclaimed water shall not produce surface runoff or ponding		75 feet to potable water supply wells that are existing or have been approved for construction 75 feet provided from a reclaimed water transmission facility to all potable water supply wells 100 feet from outdoor public	Secondary treatment, for the purpose of the manual, refers to the existing treatment requirements in the NJPDES permit, not including the additional reclaimed water for beneficial reuse treatment requirements

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	approved TSS not to exceed 5 mg/l before disinfection Total nitrogen - 10 mg/l but may be less stringent if higher limit is still protective of environment Secondary Filtration Chemical addition prior to filtration may be necessary	chlorine residual levels do not adversely impact vegetation • Continuous monitoring for turbidity before disinfection is required • Operating protocol required • User/Supplier Agreement • Annual usage report		measurable seepage Existing or proposed ponds (such as golf course ponds) are appropriate for storage of reuse water if the ability of the ponds to function as stormwater management systems is not impaired			drinking, and bathing facilities • 100 feet between indoor aesthetic features and adjacent indoor public eating and drinking facilities when in the same room or building	residual of 0.5 mg/l or greater is recommended to reduce odors, slime, and bacterial re-growth
New Mexico	Adequately treated and disinfected Fecal coliform - 100/100 ml	Fecal coliform sample taken at point of diversion to irrigation						Includes irrigation of parks, playgrounds, schoolyards, golf courses, cemeteries, and other areas where the public has similar access or exposure
North Carolina	Tertiary quality effluent (filtered or equivalent) TSS 5 mg/l (monthly average) 10 mg/l (daily maximum)	Continuous on-line monitoring and recording for turbidity or particle count and flow prior to discharge	All essential treatment units to be provided in duplicate Five-day side-stream detention pond required for effluent exceeding	Determined using a mass water balance based upon a recent 25-year period using monthly average precipitation data, potential	Site specific Application rate may take both the maximum soil absorption and water needs of the receiving crop into consideration		100 feet to any surface waters classified SA, including wetlands 25 feet to any surface water not classified SA, including wetlands and	Uses include irrigation of residential lawns, golf courses, parks, school grounds, industrial or commercial site grounds,

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State	Reclaimed Water Quality and Treatment Requirements • Fecal coliform - 14/100 ml (monthly geometric mean) - 25/100 ml (daily maximum) • BOD ₅ - 10 mg/l (monthly average) - 15 mg/l (daily maximum) • NH ₃ - 4 mg/l (monthly average) - 6 mg/l (daily maximum) • Turbidity not to exceed 10 NTU at any time	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability turbidity or fecal coliform limits • Automatically activated standby power source to be provided • Certified 24 hours/day operator with a grade level equivalent to or greater than the facility classification	Storage Requirements evapotrans- piration data, and soil drainage data No storage facilities required if it can be demonstrated that other permitted disposal options are available	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances (1) (2) any swimming pool 100 feet to any water supply well 10 feet to any nonpotable well	Other landscape areas, highway medians, and roadways • Can also be used for aesthetic purposes such as decorative ponds or fountains, dust control, soil compaction, street cleaning, vehicle washing, urinal and toilet flushing, or fire protection in sprinkler systems located in commercial or industrial facilities
North Dakota	At a minimum, secondary treatment with chlorination 25 mg/l BOD ₅ 30 mg/l TSS Fecal coliform - 200/100 ml Chlorine residual of at least 0.1 mg/l	BOD ₅ , TSS, and fecal coliform monitoring once every 2 weeks Daily monitoring of chlorine residual at the point of use farthest from the treatment plant						Use applies to irrigation of public property such as parks and golf courses Signs must be posted in visible areas during irrigation and for 2 hours after irrigation is completed
Ohio	Biological	Large system		Operational	 Determined by 	Monitoring	• 100 feet to	 Includes parks,

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	treatment and disinfection • 25 mg/l CBOD₅ • Fecal coliform (30-day average) • 23/100 ml with no public access buffer area or night application • Limits for metals	monitoring (150,000 to 500,000 gpd): • Twice weekly for CBOD₅, total coliform (when irrigating) and storage volume • Monthly monitoring for total inorganic nitrogen • Daily monitoring for flow Small system monitoring (<150,000 gpd): • Weekly monitoring of CBOD₅, total coliform (when irrigating) and storage volume • Daily monitoring of		storage of 4 times the daily design flow needed Storage provisions for at least 130 days of design average flow needed for periods when irrigation is not recommended Actual storage requirements determined by performing water balance Permits can be obtained for stream discharge during winter and times of high stream flow to reduce storage needs	calculating a water and nutrient balance	wells upgradient and downgradient of large irrigation systems • Monitoring wells should be sampled at the beginning and the end of the irrigation season	private water well 300 feet to community water well 100 feet to sink hole 50 feet to drainage way 50 feet to surface water 100 feet to road right-of- way without windbreak using spray irrigation 10 feet to road right-of-way with windbreak or with flood irrigation 50 feet to property line	golf courses, lawns, highway medians, and playing fields
Oregon	Parks, playgrounds, schoolyards, and golf courses with contiguous residences: Level IV - biological treatment, clarification,	Parks, playgrounds, schoolyards, and golf courses with contiguous residences: • Total coliform sampling - one time a day	Standby power with capacity to fully operate all essential treatment processes Redundant treatment facilities and monitoring				Parks, playgrounds, schoolyards, and golf courses with contiguous residences: None required Landscape impoundments and construction	No direct public contact is allowed during the irrigation cycle

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
	coagulation, filtration, and disinfection Total coliform - 2.2/100 ml (7-day median) - 23/100 ml (maximum any sample) Turbidity - 2 NTU (24-hour mean) - 5 NTU (5 percent of time during a 24-hour period) Landscape impoundments and construction use: Level II - biological treatment and disinfection Total coliform - 240/100 ml (2 consecutive samples) - 23/100 ml (7-day median)	Turbidity - hourly Landscape impoundments and construction use: Total coliform sampling - once a week	equipment to meet required levels of treatment • Alarm devices to provide warning of loss of power and/or failure of process equipment				use: 10-foot buffer with surface irrigation 70-foot buffer with spray irrigation No spray irrigation within 100 feet of drinking fountains or food preparation areas	
South Carolina	Advanced wastewater treatment BOD₅ and TSS - 5 mg/l (monthly average) - 7.5 mg/l	Minimum of one fecal or total coliform presence/ absence measurement daily Nitrate		Storage facilities are not required to be lined Covered storage systems or other	Hydraulic - maximum of 0.5 - 2 in/wk depending on depth to groundwater A nitrate to nitrogen	May be required	None required	Applies to application of reclaimed water in areas with a high potential for contact Includes

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⁽²⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
	(weekly average) Turbidity 1 NTU (monthly average) 5 NTU (not to exceed based on an average for 2 consecutive days) Total coliform similar to standards in State Primary Regulations for a system that collects at least 40 samples per month, if no more than 5 percent are total coliform-positive, the system will be in compliance with the MCL for total coliform Total chlorine residual limits	monitoring required		alternative methods may be required to maintain effluent quality prior to distribution	loading balance may be required • Application rates in excess of 2 in/wk may be approved			residential irrigation systems, multifamily irrigation systems, commercial irrigation systems in common residential areas, public parks, and open spaces
	based on site conditions and distribution system design							
South Dakota	Secondary treatment and disinfection			Minimum of 210 days capacity	Maximum application rate limited to	Shallow wells in all directions of major		

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
	Total coliform 200/100 ml (geometric mean)			without consideration for evaporation	2 in/acre/wk or a total of 24 in/acre/yr	groundwater flow from site and no more than 200 feet outside of the site perimeter, spaced no more than 500 feet apart, and extending into the groundwater table • Shallow wells within the site are also recommended		
Tennessee	Biological treatment Additional treatment requirements are determined on a case-by-case basis Disinfection required 30 mg/l BOD₅ and TSS (monthly average) Fecal coliform - 200/100 ml	Site specific		Storage requirements determined by either of two methods 1) use of water balance calculations or, 2) use of a computer program that was developed based upon an extensive NOAA study of climatic variations throughout the United States	Nitrogen - percolate nitrate-nitrogen not to exceed 10 mg/l Hydraulic - based on water balance using 5-year return monthly precipitation	Required	Surface Irrigation: 100 feet to site boundary 50 feet to on site streams, ponds, and roads Spray Irrigation: 100 feet to site boundary 100 feet to site boundary 150 feet to on site streams, ponds, and roads 150 feet to site boundary 75 feet to on site streams, ponds, and	Pertains to irrigation of parks, green areas, and other public oprivate land where public use occurs or is expected to occur
Texas	Type I	Sampling and			Based on		roads	Type I

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
	reclaimed water Reclaimed water on a 30-day average to have a quality of: • 5 mg/l BOD₅ or CBOD₅ • 10 mg/l for landscape impoundment) • Turbidity - 3 NTU • Fecal coliform - 20/100 ml (geometric mean) - 75/100 ml (not to exceed in any sample)	analysis twice per week for BOD₅ or CBOD₅, turbidity, and fecal coliform • Periodic fecal coliform sampling in the reclaimed water distribution system may be necessary			water balance			reclaimed water use defined as use of reclaimed water where contact between humans and the reclaimed water is likely • Uses include residential irrigation, irrigation of public parks, golf courses with unrestricted public access, schoolyards or athletic fields, fire protection, toilet flushing, and other uses
Utah	Type I treated wastewater secondary treatment with filtration and disinfection 10 mg/I BOD (monthly average) Turbidity prior to disinfection not to exceed 2 NTU (daily average) not to exceed NTU at any	Daily composite sampling required for BOD Continuous turbidity monitoring prior to disinfection Daily monitoring of fecal coliform Continuous total residual chlorine	Alternative disposal option or diversion to storage required if turbidity or chlorine residual requirements not met				50 feet to any potable water well Impoundments at least 500 feet from any potable water well	Uses allowed where human exposure is likely include residential irrigation, non-residential landscape irrigation, golf course irrigation, toilet flushing, fire protection, and other uses For residential landscape

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
	time • Fecal coliform - none detected (weekly median as determined from daily grab samples) - 14/100 ml (not to exceed in any sample) • 1.0 mg/l total residual chlorine after 30 minutes contact time at peak flow • pH 6 - 9	monitoring • pH monitored continuously or by daily grab samples						irrigation at individual homes, additional quality control restrictions may be required
Washington	Landscape irrigation, decorative fountains, street cleaning, fire protection, and toilet flushing: • Class A - oxidized, coagulated, filtered, and disinfected • Total coliform - 2.2/100 ml (7-day mean) - 23/100 ml (single sample) Landscape impoundment and construction uses:	BOD – 24-hour composite samples collected at least weekly TSS – 24-hour composite samples collected at least daily Total coliform and dissolved oxygen - grab samples collected at least daily Continuous on-line monitoring of turbidity	Warning alarms independent of normal power supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple treatment units or storage or disposal options Qualified personnel available or on	Storage required when no approved alternative disposal system exists Storage volume established by determining storage period required for duration of a 10-year storm, using a minimum of 20 years of climatic data At a minimum, system storage capacity	Hydraulic loading rate to be determined based on a detailed water balance analysis	May be required Monitoring program will be based on reclaimed water quality and quantity, site specific soil and hydrogeologic characteristics, and other considerations	50 feet to any potable water supply well Unlined impoundments - 500 feet between perimeter and any potable water supply well Lined impoundments - 100 feet between perimeter and any potable water supply well water supply well	Uses include irrigation of open access areas (such as golf courses, parks, playgrounds, schoolyards, residential landscapes, or other areas where the public has similar access or exposure to the reclaimed water) and use in decorative fountains and landscape impoundments

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
	Class C - oxidized and disinfected Total coliform - 23/100 ml (7-day mean) - 240/100 ml (single sample) General compliance requirements: 30 mg/l BOD and TSS (monthly mean) Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) Minimum chlorine residual of 1 mg/l after a contact time of 30 minutes		call at all times the irrigation system is operating	should be the volume equal to 3 times that portion of the average daily flow for which no alternative reuse or disposal system is permitted				Also includes use for street cleaning, construction, fire protection in hydrants or sprinkler systems, toilet flushing in commercial or industrial facilities and in apartments and condos where the residents do not have access to the plumbing system
Wyoming	Minimum of Class A wastewater - advanced treatment and/or secondary treatment and disinfection Fecal coliform - 2.2/100 ml or less	Treated wastewater to be analyzed for fecal coliform, nitrate as N, ammonia as N, and pH at a minimum Monitoring frequency - once per month for	Multiple units and equipment Alternative power sources Alarm systems and instrumentation Operator certification and standby capability Bypass and	Emergency storage	Will be applied for the purpose of beneficial reuse and will not exceed the irrigation demand of the vegetation at the site Not to be applied at a rate greater than the		30 feet to adjacent property lines 30 feet to all surface waters 100-feet to all potable water supply wells 100-foot buffer zone around spray site	Pertains to land with a high potential for public exposure

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Table A-1. Unrestricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates ⁽¹⁾	Groundwater Monitoring ⁽¹⁾	Setback Distances ^{(1) (2)}	Other
		lagoon systems - once per week for mechanical systems • Frequency specified in NPDES permit required if more frequent	dewatering capability • Emergency storage		agronomic rate for the vegetation at the site • Will be applied in a manner and time that will not cause any surface runoff or contamination of a groundwater aquifer			

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Table A-2. Restricted Urban Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Alabama	Minimum EPA	rtoquironionto	Controls	Based on	Based on soil	At least three	• 100 feet to	Disinfection
Alabama	secondary, or		required to	water balance	permeability	downgradient	property lines	required for
	equivalent to		indicate any	performed on a	and nitrogen	monitoring	• 300 feet to	public access
	secondary,		system	monthly basis	limits (10 mg/l	wells	existing	areas such as
	limits and		malfunction or	with a	nitrate)	At least one	habitable	golf courses
	appropriate		permit varied	precipitation	Excessive	upgradient	residences	May use
	disinfection		field operations	input using a	rainwater run-	monitoring well	Spray irrigation	breakpoint
	If wastewater			5-year, 24-	off should be	Contaminants	not allowed	chlorination
	stabilization			hour rainfall	diverted	in groundwater	within 100 feet	with rapid,
	pond is used,			event, 30-year	Excessive	not to exceed	of any	uniform mixing
	pond must			minimum base	ponding should	primary and	perennial lake	to a free
	meet ADEM			period	be avoided	secondary	or stream	chlorine
	requirements			 In addition to 		maximum	If irrigation	residual of
	with second			storage		contaminant	causes an	2 mg/l at a
	cell being used			dictated by		levels	intermittent	contact period
	as a holding			water balance,		Minimum	stream to	of 30 minutes
	pond			a minimum of		depth to	become	at average
	Mechanical			15 days		groundwater,	perennial, the	daily flow rate
	systems, if			storage should		without use of	irrigation must	 May use
	used, should			be provided for		an underdrain	cease within	ozonation or
	allow as little			contingencies		collection	100 feet of the	ultraviolet
	nitrification as					system, shall	stream	disinfection
	possible					be 4 feet	Spray irrigation	systems; a
	Disinfection						not allowed in	geometric
	must be						wellhead	mean limit of
	performed						protection area	126/100 ml for
	through one of						(WHPA 1) – if	E. Coli, or
	the following						no wellhead	33/ 100 ml for
	processes						delineation	enterococci
	- breakpoint						exists,	bacteria will be
	chlorination,						minimum distance for	required; the total
	ozonation, or ultraviolet						application	suspended
	disinfection						shall be 1,000	solids
	- storage of the						feet or as	concentration
	treated						required	of the effluent,
	wastewater for						No sites within	prior to
	a period of 20						100-year	disinfection,
	days in a						floodplain	must be no
	holding pond						ooapiaiii	more than
	prior to							5 mg/l which
	Prior to	l .	1	1	1	1	1	J mg/i willon

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Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements discharge to the application site	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other may require installation of a filtration process
Arizona	Class B reclaimed water - secondary treatment and disinfection Fecal coliform - 200/100 ml (not to exceed in 4 of the last 7 daily samples) - 800/100 ml (single sample maximum)	Case-by-case basis			Application rates based on either the water allotment assigned by the Arizona Department of Water Resources (a water balance that considers consumptive use of water by the crop, turf, or landscape vegetation) or an alternative approved method			Includes irrigation of golf courses and other restricted access landscapes Application methods that reasonably preclude human contact with reclaimed water will be used when irrigating
Arkansas	Secondary treatment and disinfection	As required by regulatory agency		Based on water balance using divisional average annual 90 percentile rainfall	Hydraulic - 0.5 to 4.0 in/wk Nitrogen - percolate nitrate-nitrogen not to exceed 10 mg/l	Required One well upgradient One well within site One well downgradient More wells may be required on a case-by-case basis	Determined on case-by-case basis	
California	Disinfected secondary-23 recycled water - oxidized and disinfected Total coliform	Total coliform - sampled at least once daily from the disinfected effluent	Warning alarms Back-up power source Multiple treatment units				No irrigation with, or impoundment of, disinfected secondary-23 recycled water	Includes landscape irrigation of cemeteries, freeway landscapes,

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Table A-2. Restricted Urban Reuse

	Reclaimed Water Quality and Treatment	Reclaimed Water	Treatment	Storago	Loading	Groundwater	Setback	
State	Requirements	Monitoring Requirements		Storage Requirements	Rates		Distances (1)	Other
State	- 23/100 ml (7-day median) - 240/100 ml (not to exceed in more than one sample in any 30-day period)	Requirements	Facility Reliability capable of treating entire flow with one unit not in operation or storage or disposal provisions • Emergency storage or disposal: short- term, 1 day; long-term, 20 days • Sufficient number of	Requirements	Kates	Monitoring	within 100 feet of any domestic water supply well No spray irrigation within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or schoolyard	and restricted access golf courses
			qualified					
Colorado	Secondary treatment with disinfection E. coli - 126/100 ml (monthly average) - 235/100 ml (single sample maximum in any calendar month) 30 mg/l TSS as a daily maximum	Treaters: Quality of reclaimed domestic wastewater produced and delivered at the point of compliance Applicators: Total volume of reclaimed domestic wastewater applied per year or season The maximum monthly volume applied Each location with the associated acreage where	personnel		Application rates shall protect surface and groundwater quality and irrigation shall be controlled to minimize ponding		No impoundment or irrigation of reclaimed water within 100 feet of any well used for domestic supply unless, in the case of an impoundment, it is lined with a synthetic material with a permeability of 10-6 cm/sec or less	

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Table A-2. Restricted Urban Reuse

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements reclaimed domestic wastewater was applied The beginning and end time for each date that reclaimed domestic wastewater is applied	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Delaware	Biological treatment and disinfection 30 mg/l BOD ₅ 30 mg/l TSS Fecal coliform - 200/100 ml	Continuous online monitoring of residual disinfection concentrations Parameters which may require monitoring include volume of water applied to spray fields, BOD, suspended solids, fecal coliform bacteria, pH, COD, TOC, ammonia nitrogen, nitrate nitrogen, total Kjeldahl nitrogen, total phosphorus, chloride, Na, K, Ca, Mg, metals, and priority		Storage provisions required either as a separate facility or incorporated into the pretreatment system Minimum 15 days storage required unless other measures for controlling flow are demonstrated Must determine operational, wet weather, and water balance storage requirements Separate off-line system for storage of reject wastewater with a	Maximum design wastewater loadings limited to 2.5 in/wk Maximum instantaneous wastewater application rates limited to 0.25 in/hour Design wastewater loading must be determined as a function of precipitation, evapotranspiration, design percolation rate, nitrogen loading and other constituent loading limitations, groundwater and drainage conditions, and	Required One well upgradient of site or otherwise outside the influence of the site for background monitoring One well within wetted field area of each drainage basin intersected by site Two wells down-gradient in each drainage basin intersected by site One well upgradient and One well downgradient of the pond treatment and storage facilities in	Determined on a case-by-case basis	Regulations pertain to sites limited to public access at specific periods of time

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Table A-2. Restricted Urban Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
		pollutants		minimum	average and	each drainage		
		Parameters		capacity equal	peak design	basin		
		and sampling		to 2-day	wastewater flows and	intersected by		
		frequency determined on		average daily design flow	seasonal	site • May require		
		a case-by-case		required	fluctuations	measurement		
		basis		required	liuctuations	of depth to		
		200.0				groundwater,		
						pH, COD,		
						TOC, nitrate		
						nitrogen, total		
						phosphorus,		
						electrical		
						conductivity, chloride, fecal		
						coliform		
						bacteria.		
						metals, and		
						priority		
						pollutants		
						Parameters		
						and sampling		
						frequency		
						determined on		
						a case-by-case basis		
Florida	Secondary	Parameters to	Class I	At a minimum.	Site specific	Required	• 75 feet to	Rules do not
Tionda	treatment with	be monitored	reliability -	system storage	Design	One	potable water	differentiate
	filtration and	and sampling	requires	capacity shall	hydraulic	upgradient well	supply wells	between
	high-level	frequency to	multiple or	be the volume	loading rate -	located as	75 feet from	unrestricted
	disinfection	be identified in	back-up	equal to 3	maximum	close as	reclaimed	and restricted
	 Chemical feed 	wastewater	treatment units	times the	annual	possible to the	water	urban reuse
	facilities to be	facility permit	and a	portion of the	average of	site without	transmission	 Tank trucks
	provided	Minimum	secondary	average daily	2 in/wk is	being affected	facility to public	can be used to
	• 20 mg/l	schedule for	power source	flow for which	recommended	by the site's	water supply	apply
	CBOD ₅	sampling and	Minimum reject storage	no alternative	Based on putrient and	discharge	well	reclaimed
	(annual average)	testing based on system	reject storage capacity equal	reuse or disposal	nutrient and water balance	(background well)	Low trajectory nozzles	water if requirements
	5 mg/l TSS	capacity	to 1 day flow at	system is	assessments	One well at the	required within	are met
	(single sample)	established for	the average	permitted	40000011101110	edge of the	100 feet of	Cross-
	Total chlorine	flow, pH,	daily design	Water balance		zone of	outdoor public	connection

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Table A-2. Restricted Urban Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	residual of at	chlorine	flow of the	required with		discharge	eating,	control and
	least 1 mg/l	residual,	treatment plant	volume of		downgradient	drinking, and	inspection
	after a	dissolved	or the average	storage based		of the site	bathing	program
	minimum	oxygen,	daily permitted	on a 10-year		(compliance	facilities	required
	acceptable	suspended	flow of the	recurrence		well)	 100 feet from 	
	contact time of	solids, CBOD ₅ ,	reuse system,	interval and a		One well	indoor	
	15 minutes at	nutrients, and	whichever is	minimum of 20		downgradient	aesthetic	
	peak hourly	fecal coliform	less	years of		from the site	features using	
	flow	Continuous	Minimum	climatic data		and within the	reclaimed	
	Fecal coliform	on-line	system size of	Not required if		zone of	water to	
	- over 30-day	monitoring of	0.1 mgd (not	alternative		discharge	adjacent	
	period, 75	turbidity prior	required for toilet flushing	system is		(intermediate	indoor public	
	percent of samples below	to disinfection Continuous	and fire	incorporated into the system		well) • One well	eating and drinking	
	detection limits	on-line	protection	design to		located	facilities	
	- 25/100 ml	monitoring of	uses)	ensure		adjacent to	200 feet from	
	(single sample)	total chlorine	• Staffing -	continuous		unlined	unlined	
	• pH 6 - 8.5	residual or	24 hrs/day,	facility		storage ponds	storage ponds	
	Limitations to	residual	7 days/wk or	operation		or lakes	to potable	
	be met after	concentrations	6 hrs/dav.	Existing or		Other wells	water supply	
	disinfection	of other	7 days/wk with	proposed lakes		may be	wells	
		disinfectants	diversion of	or ponds (such		required		
		Monitoring for	reclaimed	as golf course		depending on		
		Giardia and	water to reuse	ponds) are		site-specific		
		Cryptosporidium	system only	appropriate for		criteria		
		based on	during periods	storage if it will		 Quarterly 		
		treatment plant	of operator	not impair the		monitoring		
		capacity	presence	ability of the		required for		
		- ≥ 1 mgd,		lakes or ponds		water level,		
		sampling one		to function as a		nitrate, total		
		time during		stormwater		dissolved		
		each two-year		management		solids, arsenic,		
		period - < 1 mgd ,		system		cadmium,		
		sampling one		Aquifer		chloride,		
		time during		storage and		chromium, lead, fecal		
		each 5-year		recovery allowed as		coliform, pH,		
		period		provision of		and sulfate		
		- samples to		storage		Monitoring		
		be taken		Sicraye		may be		
		immediately				required for		
			l			l reduited for		

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements following disinfection process Primary and secondary drinking water standards to	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring additional parameters based on site- specific conditions and groundwater quality	Setback Distances ⁽¹⁾	Other
	Secondary treatment followed by coagulation, filtration, and disinfection 5 mg/I BOD 5 mg/I TSS Fecal coliform - 23/100 ml (monthly average) - 100/100 ml (maximum any sample) PH 6 - 9 Turbidity not to exceed 3 NTU prior to disinfection Detectable disinfectant residual at the delivery point	be monitored by facilities ≥ 100,000 gpd • Continuous turbidity monitoring prior to disinfection • Weekly sampling for TSS and BOD • Daily monitoring for fecal coliform • Daily monitoring for pH • Detectable disinfection residual monitoring	Multiple process units Ability to isolate and bypass all process units System must be capable of treating peak flows with the largest unit out of service Equalization may be required Back-up power supply Alarms to warn of loss of power supply, failure of pumping systems, failure of disinfection systems, or turbidity greater than 3 NTU	Reject water storage equal to at least 3 days of flow at the average daily design flow One of the following options must be in place to account for wet weather periods - sufficient storage onsite or at the customer's location to handle the flows until irrigation can be resumed - additional land set aside that can be irrigated without causing harm to the cover crop			Determined on a case-by-case basis	

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Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements - An NPDES permit for all or	Loading Rates	Groundwater Monitoring	Setback Distances ⁽¹⁾	Other
Hawaii	R-2 water - oxidized and disinfected Fecal coliform - 23/100 ml (7-day median) - 200/100 ml (not to exceed in more than one sample in any 30-day period) Theoretical chlorine contact time of 15 minutes and actual modal contact time of 10 minutes throughout which the chlorine residual is 0.5 mg/l	Daily flow monitoring Continuous turbidity monitoring prior to and after filtration process Continuous measuring and recording of chlorine residual Daily monitoring of fecal coliform Weekly monitoring of BOD ₅ and suspended solids	Multiple or standby units required with sufficient capacity to enable effective operation with any one unit out of service Alarm devices required for loss of power, high water levels, failure of pumps or blowers, high head loss on filters, high effluent turbidity, loss of coagulant or polymer feed, and loss of chlorine residual Standby power source required for treatment plant and distribution pump stations	part of the flow 20 days storage required unless it can be demonstrated that another time period is adequate or that no storage is necessary Storage requirements based on water balance using at least a 30-year record Reject storage required with a volume equal to 1 day of flow at the average daily design flow Emergency system storage not required where an alternate effluent disposal system has been approved	Design application rate determined by water balance	Required Groundwater monitoring system may consist of a number of lysimeters and/or monitoring wells depending on site size, site characteristics, location, method of discharge. and other appropriate considerations One well upgradient and two wells downgradient for project sites 500 acres or more One well within the wetted field area for each project whose surface area is greater than or equal to 1,500 acres One lysimeter per 200 acres One lysimeter for project sites	R-2 water: For spray irrigation applications, 500 feet to residence property or a place where public exposure could be similar to that at a park, elementary schoolyard, or athletic field Minimum of 100 feet to any drinking water supply well Outer edge of impoundment at least 300 feet from any drinking water supply well	R-2 water can be used for spray irrigation of freeway and cemetery landscapes and other areas where access is controlled If alternative application methods are used, such as subsurface, drip or surface irrigation, a lesser quality reclaimed water may be suitable R-2 water used in spray irrigation will be performed when the area is closed to the public and the public is absent from the area, and will end at least 1 hour before the area is open to the public Subsurface irrigation may

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances ⁽¹⁾	Other
						that have greater than 40 but less than 200 acres • Additional lysimeters may be necessary to address public health or environmental protection concerns related to variable characteristics of the subsurface or of the operations of the project		be performed at any time
Idaho	Oxidized and disinfected Total coliform - 23/100 ml (7 day median)							Includes irrigation of golf courses, cemeteries, roadside vegetation, and other areas where individuals have access or exposure Irrigation to be accomplished during periods of non-use
Illinois	Two-cell lagoon system with tertiary sand filtration and disinfection or			Minimum storage capacity equal to at least 150 days of wastewater at	Based on the limiting characteristic of the treated wastewater and the site	Required One well upgradient for determining background concentrations	25 feet to any residential lot line if surrounded by a fence with a minimum	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

	Reclaimed Water							
	Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements		Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	mechanical secondary treatment with disinfection	Requirements	Facility Reliability	design average flow except in southern Illinois areas where a minimum of 120 days of storage capacity to be provided • Storage can be determined based on a rational design that must include capacity for the wettest year with a 20-year return frequency	Balances must be calculated and submitted for water, nitrogen, phosphorus, and BOD	Monitoring Two wells downgradient in the dominant direction of groundwater movement Wells between each potable water well and the application area if within 1,000 feet Monitoring of nitrates, ammonia nitrogen, chlorides, sulfates, pH, total dissolved solids, phosphate, and coliform bacteria	height of 40 inches No buffer required if irrigation of golf course occurs only during the hours between dusk and dawn No buffer required if the application and its associated drying time occur during a period when the area is closed to the public	
Indiana	Secondary treatment and disinfection 30 mg/l BOD₅ 30 mg/l TSS Fecal coliform - 200/100 ml (7-day median) - 800/100 ml (single sample) pH 6 - 9 Total chlorine residual after a minimum contact time of 30 minutes at least 1 mg/l (if	Daily monitoring of TSS, coliform, and chlorine residual Weekly monitoring of BOD and pH Monthly monitoring of total nitrogen, ammonium nitrogen, phosphorus, and potassium	Alternate power source required	Minimum of 9 days effective storage capacity required	Maximum hydraulic loading rate of 2 in/week		200 feet to potable water supply wells or drinking water springs 300 feet to any waters of the state 300 feet to any residence	Public access to be restricted for 30 days after land application of wastewater

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements chlorination is used for disinfection)	Reclaimed Water Monitoring Requirements • Annual monitoring of arsenic, cadmium, copper, lead, mercury, nickel, selenium, and	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
lowa	At a minimum, treatment equivalent to that obtained from a primary lagoon cell Disinfection - required for all land application systems with spray irrigation application technique - must precede actual spraying of the wastewater on to a field area and must not precede storage - minimum contact time of 15 minutes with equipment necessary to maintain a residual chlorine level of 0.5 mg/l	zinc Monitoring of the following parameters required unless it has been demonstrated that they are present in insignificant amounts in the influent wastewater: total organic carbon, total dissolved solids, sodium absorption ratio, electrical conductivity, total nitrogen, organic nitrogen, organic nitrogen, nitrate nitrogen, total phosphorus, chloride, pH, alkalinity, hardness, trace	Minimum of two storage cells required capable of series and parallel operation	Minimum days of storage based on climatic restraints When flows are generated only during the application period, a storage capacity of 45 days or the flow generated during the period of operation (whichever is less) must be provided When discharging to a receiving waterway on a periodic basis, storage for 180 days of average wet weather flow is required	Determined by using a water balance per month of operation	Monitoring required adjacent to the site both upstream and downstream of the site in reference to the general groundwater flow direction	300 feet to existing dwellings or public use areas (not including roads and highways) 400 feet to any existing potable water supply well not located on property 300 feet to any structure, continuous flowing stream, or other physiographic feature that may provide direct connection between the groundwater table and the surface Wetted disposal area to be at least 50 feet inside the property	Categorized as land application using slow rate system (irrigation) Application to public use areas given as example of permissible application with requirements - public not allowed into an area when spraying is being conducted - any drinking water fountains located on or near the application area must be protected - for golf courses using "wastewater", notice of its use must be

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements • Secondary treatment and disinfection for irrigation of areas with a low probability of body contact	Reclaimed Water Monitoring Requirements elements, and coliform bacteria • Location of monitoring in effluent prior to site application • Reporting frequency depends on size of system	Treatment Facility Reliability	Storage Requirements • Storage provided to retain a minimum of 90-days average dry weather flow when no discharge to surface water is available	Loading Rates • Maximum daily application rate of 3 in/ac/day • Maximum annual application rate of 40 in/acre • Based on soil and crop moisture and/or nutrient requirements of selected crop	Groundwater Monitoring Site specific May be required	Setback Distances (1) line of the land application site 1,000 feet to any shallow public water supply well 500 feet to any public lake or impoundment — mile to any public lake or impoundment used as a source of raw water by a potable water supply None required	Other given and warning signs posted • Projected uses include irrigation of golf courses or public parks with a low probability of body contact
Maryland	 70 mg/l BOD 90 mg/l TSS Fecal coliform 3/100 ml pH 6.5 - 8.5 			Minimum of 60-days storage to be provided for all systems receiving wastewater flows throughout the	Maximum application rate of 2 in/wk on annual average basis Water balance required based on wettest year in the last 10	May be required One well upgradient of site Two wells adjacent to the property line and	200 feet to property lines, waterways, and roads for spray irrigation 500 feet to housing developments and parks for	Pertains to golf course irrigation

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

	Reclaimed Water Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
				year	years of record • Actual application rate accepted must consider permeability of the soils, depth to groundwater, and the nutrient balance of the site	downgradient of site • Monitoring frequency determined on a case-by-case basis	spray irrigation • Reduction of the buffer zone up to 50 percent will be considered with adequate windbreak • Minimum buffer zone of 50 feet for all other types of slow rate systems	
Massachusetts	Secondary treatment with filtration and disinfection pH 6 - 9 10 mg/l BOD₅ Turbidity - 2 NTU (average over 24-hour period) - 5 NTU (not to exceed at any time) Fecal coliform - no detectable colonies (7-day median) - 14/100 ml (single sample) 5 mg/l TSS 10 mg/l total nitrogen Class I groundwater permit standards	pH - daily BOD - weekly Turbidity - continuous monitoring prior to disinfection Fecal coliform - daily Disinfection UV intensity - daily or chlorine residual - daily TSS - twice per week Nitrogen - twice per month Phosphorus - twice per month Heterotrophic plate count - quarterly MS-2 phage - quarterly	EPA Class I Reliability standards may be required Two independent and separate sources of power Unit redundancy Additional storage	Immediate, permitted discharge alternatives are required for emergency situations and for nongrowing season disposal		Required Monitoring wells to be located and constructed to strategically sample the geologic units of interest between the discharges and sensitive receptors and withdrawal points Sensitive receptors include, but are not limited to public and private wells, surface waters, embayments, and ACECs Monitoring and testing frequency and	100 feet to buildings, residential property, private wells, Class A surface water bodies, and surface water intakes Other than for private wells, using a green barrier in the form of hedges or trees placed at the dwelling side of the buffer may reduce the setback distance to 50 feet No spray irrigation directed into Zone I of	Includes the irrigation of golf courses Spray irrigation must take place during non-operational hours and cannot result in any ponding

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements (SDWA Drinking Water Standards)	Reclaimed Water Monitoring Requirements Permit standards - variable testing requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring parameters determined based on land use, effluent quality and quantity, and the sensitivity of receptors	Setback Distances (1) public water supply wells	Other
Missouri	Secondary treatment equivalent to treatment obtained from primary wastewater pond cell Disinfected prior to application (not storage) Total residual chlorine of 0.5 mg/l after 15 minutes of contact time at peak flow Fecal coliform - 200/100 ml			Minimum of 45 days in south with no discharge Minimum of 90 days in north with no discharge Based on the design wastewater flows and net rainfall minus evaporation expected for a one in 10-year return frequency for the storage period selected	Application rates shall in no case exceed - 0.5 in/hour - 1.0 in/day - 3.0 in/week Maximum annual application rate not to exceed a range from 4 to 10 percent of the design sustained permeability rate for the number of days per year when soils are not frozen Nitrogen loading not to exceed the amount of nitrogen that can be used by the vegetation to be grown	Minimum of one well between site and public supply well	150 feet to existing dwellings or public use areas, excluding roads or highways 50 feet to property lines 300 feet to potable water supply wells not on property, sinkholes, and losing streams or other structure or physiographic feature that may provide direct connection between the groundwater table and the surface	Public restricted from area during application
Montana	Oxidized and disinfected Fecal coliform - 200/100 ml	Effluent to be monitored on a regular basis to show the			Nitrogen and hydraulic loadings determined	Determined on a case-by-case basis Consideration	Buffer zones determined on a case-by-case basis if less	Includes landscape irrigation of golf courses.

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

	Reclaimed Water							
	Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	(7-day median) - 400/100 ml (any two consecutive samples)	biochemical and bacteriological quality of the applied wastewater • Monitoring frequency to be determined on a case-by- case basis			based on methods in EPA Manual 625/1-81-013 • Hydraulic loading must be based on the wettest year in ten years	is given to groundwater characteristics, past practices, depth to groundwater, cropping practices, etc.	than 200 feet If low trajectory nozzles are used, the buffer zone can be reduced to 50 feet 100 feet to any water supply well Distance to surface water determined on a case-by-case basis based on quality of effluent and the level of disinfection	cemeteries, freeway landscapes, and landscapes in other areas where the public has similar access or exposure Public access must be restricted during the period of application
Nebraska	Biological treatment Disinfected prior to application Fecal coliform limit to be established	Site specific			Hydraulic loading rate should not exceed 4 in/wk Nitrogen loading not to exceed crop uptake	Site specific	dominoctori	Includes irrigation of golf courses and other public use areas
Nevada	At a minimum, secondary treatment with disinfection 30 mg/l BOD ₅ No buffer zone: Fecal coliform - 2.2/100 ml (30-day geometric mean) - 23/100 ml (maximum						None or 100 foot minimum buffer required depending on level of disinfection	Uses include irrigation of golf courses, cemeteries, or greenbelts where public access to the site being irrigated is controlled and human contact with the treated effluent

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements daily number) 100' buffer zone: • Fecal coliform - 23/100 ml (30-day geometric mean) - 240/100 ml (maximum daily number)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances ⁽¹⁾	Other does not occur or cannot reasonably be expected
New Jersey	daily number) Fecal coliform - 2.2/100 ml (7-day median) - 14/100 ml (maximum any one sample) Minimum chlorine residual - 1.0 mg/l after 15-minute contact at peak hourly flow Alternative methods of disinfection, such as UV and ozone, may be approved TSS not to exceed 5 mg/l before disinfection Total nitrogen - 10 mg/l but may be less stringent if higher limit is still protective of environment	Continuous on-line monitoring of chlorine residual produced oxidant at the compliance monitoring point For spray irrigation, chlorination levels for disinfection should be continually evaluated to ensure chlorine residual levels do not adversely impact vegetation Continuous monitoring for turbidity before disinfection is required Operating		Not required when another permitted reuse system or effluent disposal system is incorporated into the system design If system storage ponds are used, they do not have to be lined Reject storage ponds shall be lined or sealed to prevent measurable seepage Existing or proposed ponds (such as golf course ponds) are appropriate for storage of reuse water if the ability of the ponds to	Hydraulic loading rate - maximum annual average of 2 in/wk but may be increased based on a site-specific evaluation The spray irrigation of reclaimed water shall not produce surface runoff or ponding		75 feet to potable water supply wells that are existing or have been approved for construction 75 feet provided from a reclaimed water transmission facility to all potable water supply wells 100 feet from outdoor public eating, drinking, and bathing facilities	Secondary treatment, for the purpose of the manual, refers to the existing treatment requirements in the NJPDES permit, not including the additional reclaimed water for beneficial reuse treatment requirements A chlorine residual of 0.5 mg/l or greater is recommended to reduce odors, slime, and bacterial re-growth

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements Secondary Filtration Chemical addition prior to filtration may be necessary	Reclaimed Water Monitoring Requirements protocol required • User/Supplier Agreement • Annual usage report	Treatment Facility Reliability	Storage Requirements function as stormwater management systems is not impaired	Loading Rates	Groundwater Monitoring	Setback Distances ⁽¹⁾	Other
New Mexico	Adequately treated and disinfected Fecal coliform of 1000/100 ml	Fecal coliform sample taken at point of diversion to irrigation system						Includes irrigation of freeway landscapes and landscapes in other areas where the public has similar access or exposure
North Carolina	Tertiary quality effluent (filtered or equivalent) TSS Smg/l (monthly average) 10 mg/l (daily maximum) Fecal coliform 14/100 ml (monthly geometric mean) 25/100 ml (daily maximum) BOD5 10 mg/l (monthly average) 15 mg/l (daily	Continuous on-line monitoring and recording for turbidity or particle count and flow prior to discharge	All essential treatment units to be provided in duplicate Five-day side-stream detention pond required for effluent exceeding turbidity or fecal coliform limits Automatically activated standby power source to be provided Certified operator 24 hours/day with a grade level equivalent to	Determined using a mass water balance based upon a recent 25-year period using monthly average precipitation data, potential evapotranspiration data, and soil drainage data No storage facilities required if it can be demonstrated that other permitted disposal options are	Site specific Application rate may take both the maximum soil absorption and water needs of the receiving crop into consideration		100 feet to any surface waters classified SA, including wetlands 25 feet to any surface water not classified SA, including wetlands and any swimming pool 100 feet to any water supply well 10 feet to any nonpotable well	Uses include irrigation of golf courses, cemeteries, industrial or commercial site grounds, landscape areas, highway medians, and roadways

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water	T	01	L P	0	0.461	
04-4-	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback Distances (1)	045
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
	maximum)		or greater than	available				
	• NH ₃		the facility classification					
	- 4 mg/l							
	(monthly		on call					
	average) - 6 mg/l (daily							
	maximum)							
	Turbidity not to							
	exceed 10							
	NTU at any							
	time							
North Dakota	At a minimum,	BOD₅ and TSS						Use applies to
North Bakota	secondary	monitoring						irrigation of
	treatment	once every 2						public property
	25 mg/l BOD₅	weeks						such as parks
	• 30 mg/l TSS	Fecal coliform						and golf
	Fecal coliform	- twice weekly						courses
	- 200/100 ml	for mechanical						Irrigation
		plants						should take
		- once per						place during
		week for						hours when
		lagoon						the public does
		systems						not have
								access to the
								area being
							ļ	irrigated
Ohio	Biological	Large system		Operational	Determined by	Monitoring	• 100 feet to	
	treatment	monitoring		storage of 4	calculating a	wells	private water	
	Disinfection	(150,000 to		times the daily	water and	upgradient and	well	
	should be	500,000 gpd):		design flow	nutrient	downgradient	• 300 feet to	
	considered	Twice weekly		needed	balance	of large	community	
	• 40 mg/l	for CBOD ₅ ,		Storage		irrigation	water well	
	CBOD ₅	total coliform		provisions for		systems	100 feet to	
	Fecal coliform (30-day	(when irrigating) and		at least 130 days of design		Monitoring wells should	sink hole • 50 feet to	
	average)	storage		average flow		be sampled at	drainage way	
	- 23/100 ml	volume		needed for		the beginning	50 feet to	
	with no public	Monthly		periods when		and the end of	surface water	
	access buffer	monitoring for		irrigation is not		the irrigation	100 feet to	
	- 200/100 ml	total inorganic		recommended		season	road right-of-	
	with 100-foot	nitrogen		Actual storage			way without	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements public access buffer - 1,000/100 ml with 200 foot public access buffer • Limits for metals	Reclaimed Water Monitoring Requirements • Daily monitoring for flow Small system monitoring (<150,000 gpd): • Weekly monitoring of CBOD ₅ , total coliform (when irrigating) and storage volume • Daily monitoring of flow	Treatment Facility Reliability • Standby power	Storage Requirements requirements determined by performing water balance • Permits can be obtained for stream discharge during winter and times of high stream flow to reduce storage needs	Loading Rates	Groundwater Monitoring	Setback Distances (1) windbreak using spray irrigation • 10 feet to road right-of-way with windbreak or with flood irrigation • 50 feet to property line	Other • Applies to
Окіапота	Secondary treatment and disinfection		Standby power required for continuity of operation during power failures	Required for periods when available wastewater exceeds design hydraulic loading rate, and when the ground is saturated or frozen Based on water balance Must provide at least 90 days of storage above that required for primary treatment	Based on the lower of the two rates calculated for soil permeability and nitrogen requirements		adjacent property Additional distance may be required where prevailing winds could cause aerosols to drift into residential areas Buffer zone to be a part of the permitted site	Applies to multi-purpose use areas such as golf courses Wastewater to be applied during times of non-use No wastewater applied in public use areas with high potential for skin to ground contact
Oregon	Level II - biological treatment and disinfection	Total coliform sampling 1 time per week	Standby power with capacity to fully operate all essential				10-foot buffer with surface irrigation 70-foot buffer	Includes irrigation of golf courses without

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback Distances (1)	Other
State	Requirements • Total coliform - 240/100 ml (2 consecutive samples) - 23/100 ml (7-day median)	Requirements	Facility Reliability treatment processes Redundant treatment facilities and monitoring equipment to meet required levels of treatment Alarm devices to provide warning of loss of power and/or failure of process equipment	Requirements	Rates	Monitoring	with spray irrigation No spray irrigation within 100 feet of drinking fountains or food preparation areas	contiguous residences, cemeteries, highway medians, and landscapes without frequent public access
South Carolina	Secondary treatment and disinfection BOD₅ and TSS - 30 mg/l (monthly average) - 45 mg/l (weekly average) Total coliform - 200/100 ml (monthly average) - 400/100 ml (daily maximum)	Nitrate monitoring required			Hydraulic - maximum of 0.5 - 2 in/wk depending on depth to groundwater A nitrate to nitrogen loading balance may be required Application rates in excess of 2 in/wk may be approved provided the application is only for a portion of the year; requires a water balance for the summer season	Required One well upgradient Two wells downgradient A minimum of 9 wells are suggested for each 18 fairways	200 feet to surface waters of the state, occupied buildings, and potable water wells 75 feet to property boundary	Applies to irrigation of golf courses

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State South Dakota	Reclaimed Water Quality and Treatment Requirements • Secondary treatment and disinfection	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements • Minimum of 210 days capacity	Loading Rates • Maximum application rate limited to	Groundwater Monitoring • Shallow wells in all directions of major	Setback Distances (1)	Other
	Total coliform 200/100 ml (geometric mean)			without consideration for evaporation	2 in/acre/wk or a total of 24 in/acre/yr	groundwater flow from site and no more than 200 feet outside of the site perimeter, spaced no more than 500 feet apart, and extending into the groundwater table Shallow wells within the site are also recommended		
Tennessee	Biological treatment Additional treatment requirements are determined on a case-by-case basis Disinfection required 30 mg/l BOD₅ and TSS (monthly average) Fecal coliform - 200/100 ml	Site specific		Storage requirements determined by either of two methods, 1) use of water balance calculations or, 2) use of a computer program that was developed based upon an extensive NOAA study of climatic variations throughout the United States	Nitrogen - percolate nitrate-nitrogen not to exceed 10 mg/l Hydraulic - based on water balance using 5-year return monthly precipitation	Required	Surface Irrigation: 100 feet to site boundary 50 feet to onsite streams, ponds, and roads Spray Irrigation: [1] Open Fields 300 feet to site boundary 150 feet to onsite streams, ponds, and roads [2] Forested 150 feet to site boundary 75 feet to onsite streams, ponds, and roads	Pertains to irrigation of golf courses, cemeteries, and other public and private land where public use occurs or is expected to occur

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Texas	Type II reclaimed water Reclaimed water Reclaimed water on a 30-day average to have a quality of: 30 mg/l BOD₅ with treatment using pond system 20 mg/l BOD₅ or 15 mg/l CBOD₅ with treatment other than pond system Fecal coliform - 200/100 ml (geometric mean) - 800/100 ml (not to exceed in any sample)	Sampling and analysis once per week for BOD₅ or CBOD₅ and fecal coliform			Based on water balance		roads	Type II reclaimed water use defined as use of reclaimed water where contact between humans and the reclaimed water is unlikely Uses include irrigation of limited access highway rights-of-way and other areas where human access is restricted or unlikely to occur Use of reclaimed water for soil compaction and dust control in construction areas where application procedures minimize aerosol drift to public areas also included
Utah	Type II treated wastewater - secondary	Weekly composite sampling	Alternative disposal option or diversion to				300 feet to any potable water well	Uses allowed include irrigation of

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

	Reclaimed Water	De claime d Water						
	Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
State	treatment with disinfection 25 mg/l BOD (monthly average) TSS 25 mg/l (monthly average) 35 mg/l (weekly mean) Fecal coliform 200/100 ml (weekly median) 800/100 ml (not to exceed in any sample) pH 6 - 9	required for BOD Daily composite sampling required for TSS Daily monitoring of fecal coliform pH monitored continuously or by daily grab samples	storage required in case quality requirements not met	requiencies	Trates	Wolffieding	300 feet to areas intended for public access Impoundments at least 500 feet from any potable water well Public access to effluent storage and irrigation or disposal sites to be restricted by a stocktight fence or other comparable means	highway rights- of-way and other areas where human access is restricted or unlikely to occur • Also allows use of reclaimed water for soil compaction or dust control in construction areas
Washington	Class C - oxidized and disinfected Total coliform - 23/100 ml (7-day mean) - 240/100 ml (single sample) General compliance requirements: 30 mg/l BOD and TSS (monthly mean) Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) Minimum	BOD – 24-hour composite samples collected at least weekly TSS – 24-hour composite samples collected at least daily Total coliform and dissolved oxygen - grab samples collected at least daily Continuous on-line monitoring of turbidity	Warning alarms independent of normal power supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple treatment units or storage or disposal options Qualified personnel available or on call at all times the irrigation	Storage required when no approved alternative disposal system exists Storage volume established by determining storage period required for duration of a 10-year storm, using a minimum of 20 years of climatic data At a minimum, system storage capacity should be the	Hydraulic loading rate to be determined based on a detailed water balance analysis	May be required Monitoring program will be based on reclaimed water quality and quantity, site specific soil and hydrogeologic characteristics, and other considerations	50 feet to areas accessible to the public and use area property line 100 feet to any potable water supply well	Uses include irrigation of restricted access areas such as freeway landscapes, or other areas where the public has similar access or exposure to the reclaimed water

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-2. Restricted Urban Reuse

State	Reclaimed Water Quality and Treatment Requirements chlorine residual of 1 mg/l after a contact time of 30 minutes	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability system is operating	Storage Requirements volume equal to 3 times that portion of the average daily flow for which no alternative reuse or disposal system is	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Wyoming	Minimum of Class B wastewater-secondary treatment and disinfection Fecal coliform - greater than 2.2/100 ml but less than 200/100 ml	Treated wastewater to be analyzed for fecal coliform, nitrate as N, ammonia as N, and pH at a minimum Monitoring frequency - once per month for lagoon systems - once per week for mechanical systems Frequency specified in NPDES permit required if more frequent	Multiple units and equipment Alternative power sources Alarm systems and instrumentation Operator certification and standby capability Bypass and dewatering capability Emergency storage	Emergency storage	Will be applied for the purpose of beneficial reuse and will not exceed the irrigation demand of the vegetation at the site Not to be applied at a rate greater than the agronomic rate for the vegetation at the site Will be applied in a manner and time that will not cause any surface runoff or contamination of a groundwater aquifer		30 feet to adjacent property lines 30 feet to all surface waters 100 feet to all potable water supply wells	Pertains to land that is accessible to the public but with limited access during irrigation periods

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback Distances ⁽¹⁾	Other
	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	
Arizona	Class A reclaimed water: Secondary treatment, filtration and disinfection Chemical feed facilities required to add coagulants or polymers if necessary to meet turbidity criterion Turbidity - 2 NTU (24- hour average) - 5 NTU (not to exceed at any time) Fecal coliform - none detectable in 4 of last 7 daily samples - 23/100 ml (single sample maximum) Class B reclaimed water: Secondary treatment and disinfection Fecal coliform - 200/100 ml (not to exceed in 4 of the last 7 daily	Case-by-case basis			Application rates based on either the water allotment assigned by the Arizona Department of Water Resources (a water balance that considers consumptive use of water by the crop, turf, or landscape vegetation) or an alternative approved method			Class A reclaimed water required for spray irrigation of food crops and orchards or vineyards Class B reclaimed water suitable for surface irrigation of orchards or vineyards reclaimed water suitable for surface irrigation of orchards or vineyards

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements samples) - 800/100 ml (single sample maximum)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Arkansas	Primary treatment	As required by regulatory agency		Based on water balance using divisional average annual 90 percentile rainfall	Hydraulic - 0.5 to 4.0 in/wk Nitrogen - percolate nitrate-nitrogen not to exceed 10 mg/l	Required One well upgradient 1 well within site One well downgradient More wells may be required on a case-by-case basis	Spray irrigation: 200 feet 1,320 feet to populated area Non-spray system: 50 feet 660 feet to populated area	Pertains to processed food crops only and evaluated on a case-by-case basis Irrigation of raw food crops is not permitted
California	Disinfected tertiary recycled water: Oxidized, coagulated (not required if membrane filtration is used and/or turbidity requirements are met), filtered, disinfected Total coliform - 2.2/100 ml (7-day median) - 23/100 ml (not to exceed in more than one sample in any 30-day	Disinfected tertiary recycled water: Total coliform - sampled at least once daily from the disinfected effluent Turbidity - continuously sampled following filtration Disinfected secondary-2.2 recycled water: Total coliform - sampled at least once daily from the disinfected	Warning alarms Back-up power source Multiple treatment units capable of treating entire flow with one unit not in operation or storage or disposal provisions Emergency storage or disposal: short-term, 1 day; long-term, 20 days Sufficient number of				No irrigation with disinfected tertiary recycled water within 50 feet of any domestic water supply well unless certain conditions are met No impoundment of disinfected tertiary recycled water within 100 feet of any domestic water supply well No irrigation	Disinfected tertiary recycled water can be used for irrigation of food crops where recycled water comes into contact with edible portion of crop Disinfected secondary-2.2 recycled water can be used for irrigation of food crops where edible portion is produced above ground and not

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
	period) - 240/100 ml (maximum any one sample) - Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum average of 2 NTU within a 24-hour period - not to exceed 5 NTU more than 5 percent of the time within a 24-hour period - maximum of 10 NTU at any time - Turbidity requirements for wastewater passed through membrane - not to exceed 0.2 NTU more than 5 percent of the time within a	effluent	qualified personnel				with, or impoundment of, disinfected secondary-2.2 recycled water within 100 feet of any domestic water supply well No irrigation with, or impoundment of, undisinfected secondary recycled water within 150 feet of any domestic water supply well No spray irrigation of any recycled water, other than disinfected tertiary recycled water, within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or schoolyard	contacted by the recycled water • Undisinfected secondary recycled water can be used for irrigation of orchards and vineyards where recycled water does not come into contact with edible portion of crop and food crops that must undergo commercial pathogen- destroying processing before consumption

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
	24-hour period - maximum of 0.5 NTU at any time Disinfected secondary-2.2 recycled water: • Oxidized and disinfected • Total coliform - 2.2/100 ml (7-day median) - 23/100 ml (not to exceed in more than one sample in any 30-day period) Undisinfected secondary recycled water: • Oxidized wastewater							
Colorado	Consumed raw: [1] Surface irrigation Oxidized and disinfected Total coliform - 2.2/100 ml (7-day median) Not acceptable for root crops or crops where edible portions contact ground [2] Spray						500 feet to domestic supply well 100 feet to any irrigation well Setback from property lines based upon use of adjoining property	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

	Reclaimed Water Quality and	Reclaimed Water						
State	Treatment Requirements	Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
State	irrigation	nequirements	racility nellability	nequirements	nates	IVIOTITOTITY	Distances	Other
	Oxidized,							
	coagulated,							
	clarified,							
	filtered, and							
	disinfected							
	Total coliform							
	- 2.2/100 ml							
	(7-day median)							
	Processed food:							
	 Oxidized and 							
	disinfected							
	 Total coliform 							
	- 23/100 ml							
	(7-day median)							
	Orchards &							
	Vineyards:							
	[1] Surface							
	irrigation							
	Oxidized and disinfected							
	Total coliform							
	- 23/100 ml							
	(7-day median)							
	Edible portion							
	of plant cannot							
	contact ground							
	[2] Spray							
	irrigation							
	 Oxidized, 							
	coagulated,							
	clarified,							
	filtered, and							
	disinfected							
	Total coliform							
	- 2.2/100 ml							
F	(7-day median)					ļ <u></u>	75 () .	5
Florida	Secondary	 Parameters to 	Class I	At a minimum,	Site specific	Required	 75 feet to 	 Direct contact

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
State	Treatment	Requirements be monitored and sampling frequency to be identified in wastewater facility permit Minimum schedule for sampling and testing based on system capacity established for flow, pH, chlorine residual, dissolved oxygen, suspended solids, CBOD ₅ , nutrients, and fecal coliform Continuous on-line monitoring of turbidity prior to disinfection Continuous on-line monitoring of total chlorine residual concentrations of other disinfectants	Facility Reliability reliability - requires multiple or back-up treatment units and a secondary power source • Minimum reject storage capacity equal to 1-day flow at the average daily design flow of the treatment plant or the average daily permitted flow of the reuse system, whichever is less • Minimum system size of 0.1 mgd (not required for toilet flushing and fire protection uses) • Staffing - 24 hrs/day, 7 days/wk or 6 hrs/day, 7 days/wk with diversion of	Requirements system storage capacity shall be the volume equal to three times the portion of the average daily flow for which no alternative reuse or disposal system is permitted Water balance required with volume of storage based on a 10-year recurrence interval and a minimum of 20 years of climatic data Not required if alternative system is incorporated into the system design to ensure continuous facility operation Existing or proposed lakes or ponds (such		Monitoring • One upgradient well located as close as possible to the site without being affected by the site's discharge (background well) • One well at the edge of the zone of discharge downgradient of the site (compliance well) • One well downgradient from the site and within the zone of discharge (intermediate well) • One well located adjacent to unlined storage ponds or lakes • Other wells may be required	Setback Distances (1) potable water supply wells 75 feet from reclaimed water transmission facility to public water supply well Low trajectory nozzles required within 100 feet of outdoor public eating, drinking, and bathing facilities 200 feet from unlined storage ponds to potable water supply wells	irrigation of edible crops that will not be peeled, skinned, cooked, or thermally processed before consumption is not allowed except for tobacco and citrus Indirect application methods that preclude direct contact with the reclaimed water can be used for irrigation of any edible crop Citrus irrigation systems will only require secondary treatment and basic disinfection if public access will be restricted, the reclaimed water does not
		Monitoring for Giardia and	reclaimed water to reuse	as golf course ponds) are		depending on site-specific		directly contact the fruit, and

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
		Cryptosporidium	system only	appropriate for		criteria		the fruit
		based on	during periods	storage if it will		 Quarterly 		produced is
		treatment plant	of operator	not impair the		monitoring		processed
		capacity	presence	ability of the		required for		before human
		- ≥ 1 mgd,		lakes or ponds		water level,		consumption
		sampling one		to function as a		nitrate, total		
		time during		stormwater		dissolved		
		each two-year		management		solids, arsenic,		
		period		system		cadmium,		
		- < 1 mgd ,		Aquifer		chloride,		
		sampling one		storage and		chromium,		
		time during		recovery		lead, fecal		
		each 5 year		allowed as		coliform, pH,		
		period		provision of		and sulfate		
		- samples to		storage		Monitoring		
		be taken				may be		
		immediately				required for		
		following				additional		
		disinfection				parameters		
		process				based on site-		
		Primary and				specific		
		secondary				conditions and		
		drinking water				groundwater		
		standards to				quality		
		be monitored						
		by facilities ≥						
		100,000 gpd						
Hawaii	R-1 water:	Daily flow	Multiple or	 20 days 	Design	Required	R-1 water:	R-1 water can
	Oxidized,	monitoring	standby units	storage	application rate	Groundwater	Minimum of 50	be used for
	filtered, and	Continuous	required with	required	determined by	monitoring	feet to drinking	spray irrigation
	disinfected	turbidity	sufficient	unless it can	water balance	system may	water supply	of food crops
	Fecal coliform	monitoring	capacity to	be		consist of a	well	above ground
	- 2.2/100 ml	prior to and	enable	demonstrated		number of	Outer edge of	and not
	(7-day median)	after filtration	effective	that another		lysimeters	impoundment	contacted by
	- 23/100 ml	process	operation with	time period is		and/or	at least 100	irrigation and
	(not to exceed	Continuous	any one unit	adequate or		monitoring	feet from any	orchards and
	in more than	measuring and	out of service	that no storage		wells	drinking water	vineyards
	one sample in	recording of	Alarm devices	is necessary		depending on	supply well	bearing food

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

period) - 200/100 ml (maximum any one sample) - Inactivation and/or removal of 99,999 percent of the plaque-forming units of F- specific bacteriophage MS2, or polio virus - Detectable turbidity not to exceed 5 NTU for more than 15 minutes and never to exceed 10 NTU prior to filtration is used; not required in all cases where granular media filitration is used; not required for required of and simple and	State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
	State	any 30-day period) - 200/100 ml (maximum any one sample) • Inactivation and/or removal of 99.999 percent of the plaque-forming units of F-specific bacteriophage MS2, or polio virus • Detectable turbidity not to exceed 5 NTU for more than 15 minutes and never to exceed 10 NTU prior to filtration • Effluent turbidity not to exceed 2 NTU • Chemical pretreatment facilities required in all cases where granular media filtration is used; not	chlorine residual • Daily monitoring of fecal coliform • Weekly monitoring of BOD₅ and suspended	required for loss of power, high water levels, failure of pumps or blowers, high head loss on filters, high effluent turbidity, loss of coagulant or polymer feed, and loss of chlorine residual • Standby power source required for treatment plant and distribution	Storage requirements based on water balance using at least a 30-year record Reject storage required with a volume equal to 1 day of flow at the average daily design flow Emergency system storage not required where an alternate effluent disposal system has	Traces	site size, site characteristics, location, method of discharge, and other appropriate considerations One well upgradient and two wells downgradient for project sites 500 acres or more One well within the wetted field area for each project whose surface area is greater than or equal to 1,500 acres One lysimeter per 200 acres One lysimeter for project sites that have greater than 40 but less than 200 acres Additional lysimeters may be necessary to address	R-2 water: For spray irrigation applications, 500 feet to residence property or a place where public exposure could be similar to that at a park, elementary schoolyard or athletic field Minimum of 100 feet to any drinking water supply well Outer edge of impoundment at least 300 feet from any drinking water supply well R-3 water: Minimum of 150 feet to drinking water supply well Cuter edge of impoundment at least 1000 feet to any drinking water supply well Outer edge of impoundment at least 1000 feet to any drinking water	crops R-2 water can be used for spray irrigation of food crops undergoing commercial pathogen destroying process before consumption, as well as orchards and vineyards not bearing food crops during irrigation R-2 water can be used for subsurface irrigation of food crops above ground and not contacted by irrigation R-3 water can be used for drip, surface, or subsurface irrigation of food crops undergoing commercial pathogen

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback	Other
State	Fequirements filtration Theoretical chlorine contact time of 120 minutes and actual modal contact time of 90 minutes throughout which the chlorine residual is 5 mg/l F-2 water: Oxidized and disinfected Fecal coliform - 23/100 ml (7-day median) - 200/100 ml (not to exceed in more than one sample in any 30-day period) Theoretical chlorine contact time of 15 minutes and actual modal contact time of 10 minutes throughout which the chlorine residual is	Requirements	Facility Reliability	Requirements	Rates	Monitoring protection as related to variable characteristics of the subsurface or of the operations of the project	Distances (1)	Other 30 days before before harvest), orchards and vineyards bearing food crops and orchards and vineyards not bearing food crops during irrigation R-2 water used in spray irrigation will be performed when the area is closed to the public and the public is absent from the area, and will end at least 1 hour before the area is open to the public Subsurface irrigation may be performed at any time

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

0	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	011
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	0.5 mg/l							
	R-3 water:							
	Oxidized							
l al a la a	wastewater							
Idaho	Raw food crops							
	where reclaimed							
	water contacts							
	edible portion:Oxidized,							
	coagulated, clarified,							
	filtered, and							
	disinfected							
	Total coliform							
	- 2.2/100 ml							
	(7-day median)							
	Raw food crops							
	where reclaimed							
	water only							
	contacts unedible							
	portion:							
	Oxidized and							
	disinfected							
	Total coliform							
	- 2.2/100 ml							
	(7-day median)							
	Processed foods							
	and orchards &							
	vineyards with no							
	direct contact of							
	reclaimed water:							
	[1] Unrestricted							
	public access							
	 Disinfected 							
	primary							
	effluent							
	 Total coliform 							
	- 230/100 ml							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements (7-day median) [2] Restricted public access • Primary effluent	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Indiana	Secondary treatment and disinfection 10 mg/l BOD ₅ 5 mg/l TSS prior to disinfection (24 hour average) Fecal coliform - no detectable fecal coliform (7-day median) - 14/100 ml (single sample) pH 6 - 9 Total chlorine residual at least 1 mg/l after a minimum contact time of 30 minutes (if chlorination is used for disinfection)	Daily monitoring of TSS, coliform, and chlorine residual Weekly monitoring of BOD and pH Monthly monitoring of total nitrogen, ammonium nitrogen, nitrate nitrogen, phosphorus, and potassium Annual monitoring of arsenic, cadmium, copper, lead, mercury, nickel, selenium, and zinc	Alternate power source required	Minimum of 90 days effective storage capacity required	Maximum hydraulic loading rate of 2 in/week		200 feet to potable water supply wells or drinking water springs 300 feet to any waters of the state 300 feet to any residence	Food crops not to be harvested for 14 months after land application of wastewater if the harvested part touches the ground and has no harvested parts below the soil surface Food crops not to be harvested for 38 months after land application of wastewater if harvested parts are below the soil surface Otherwise, food crops not to be harvested for 30 days after land application of wastewater if harvested for 30 days after land application of wastewater

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Kansas	Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge to surface water	Trequiremente	Taomy Honabiny	Storage provided to retain a minimum of 900 days average dry weather flow when no discharge to surface water is available	Maximum daily application rate of 3 in/ac/day Maximum annual application rate of 40 in/acre Based on soil and crop moisture and/or nutrient requirements of selected crop	Site specific	500 feet to residential areas 200 feet to wells and water supplies not on site property 100 feet to adjacent properties Groundwater table a depth of at least 10 feet beneath application area	Irrigation of unprocessed food for direct human consumption prohibited
Michigan	pH 5.5 - 10 20 mg/l total inorganic nitrogen 0.5 mg/l nitrite 5 mg/l phosphorus 1 mg/l phosphorus if surface water body is downgradient within 1,000 feet Aluminum, 150 ug/l Chloride, 250 mg/l Sodium, 150 mg/l Sulfate,	Flow measurement Grab samples collected and analyzed twice each month for ammonianitrogen, nitratenitrogen, nitrite-nitrogen, sodium, chloride, phosphorus, and pH			Daily, monthly, or annual design hydraulic loading rate shall not be more than 7 percent of the permeability of the most restrictive soil layer within the solum as determined by the saturated hydraulic conductivity method or 12 percent of the permeability as determined by	May be required Monitoring requirements specific to each site	100 feet to property lines	Irrigated crops for human consumption shall be limited to those requiring processing prior to consumption Allows irrigation of vegetated areas between May 1 and October 15 Governed by Michigan Department of Environmental Quality issued groundwater

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water		_				
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	250 mg/l				the basin			discharge
	• Iron, 300 ug/l				infiltration			permits
	Manganese,				method			Categorized as
	50 ug/l • THM limits				Annual			slow rate land
	Treatment				hydraulic loading rate			treatment
	technology				shall not be			
	standards for				more than 3			
	certain organic				percent of the			
	substances				permeability of			
	Additional				the solum			
	effluent criteria				when			
	determined on				determined by			
	a case-by-case				either the			
	basis				cylinder			
					infiltration			
					method or air			
					entry			
					permeameter			
					test method			
Montana	Oxidized,	Effluent to be			Nitrogen and	Determined on	100 feet to any	Reduction to
	clarified,	monitored on			hydraulic	a case-by-case	water supply	reclaimed
	coagulated,	a regular basis			loadings	basis	well	water quality
	filtered, and	to show the			determined	Consideration	Distance to	requirements
	disinfected	biochemical			based on	is given to	surface water	may be
	10 mg/l or less of BOD and	and			methods in EPA Manual	groundwater	determined on	considered for
	TSS	bacteriological			625/1-81-013	characteristics,	a case-by-case basis based on	food crops
	Fecal coliform	quality of the applied			• Hydraulic	past practices, depth to	quality of	which undergo extensive
	- 23/100 ml	wastewater			loading must	groundwater,	effluent and	commercial,
	(single sample	Monitoring			be based on	cropping	the level of	physical, or
	in any 30-day	frequency to			the wettest	practices, etc.	disinfection	chemical
	period)	be determined			year in ten	practices, etc.	distribution	processing
	Turbidity	on a case-by-			years			sufficient to
	- 2 NTU	case basis			, , , , , , , , , , , , , , , , , , , ,			destroy
	(average)							pathogenic
	- 5 NTU (not to							agents before
	exceed more							it is suitable for

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements than 5 percent	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other human
	of the time during any 24- hour period)							consumption
Nevada	At a minimum, secondary treatment with disinfection 30 mg/l BOD ₅ Fecal coliform - 200/100 ml (30-day geometric mean) - 400/100 ml (maximum daily number)						None required	Only surface irrigation of fruit or nut bearing trees permitted
New Jersey	Fecal coliform - 2.2/100 ml (7-day median) - 14/100 ml (maximum any one sample) Minimum chlorine residual - 1.0 mg/l after 15-minute contact at peak hourly flow Alternative methods of disinfection, such as UV and ozone, may be approved TSS not to	Continuous on-line monitoring of chlorine residual produced oxidant at the compliance monitoring point For spray irrigation, chlorination levels for disinfection should be continually evaluated to ensure chlorine residual levels		Not required when another permitted reuse system or effluent disposal system is incorporated into the system design If system storage ponds are used, they do not have to be lined Reject storage ponds shall be lined or sealed to prevent measurable seepage	Hydraulic loading rate - maximum annual average of 2 in/wk but may be increased based on a site-specific evaluation The spray irrigation of reclaimed water shall not produce surface runoff or ponding		To feet to potable water supply wells that are existing or have been approved for construction To feet provided from a reclaimed water transmission facility to all potable water supply wells To feet from outdoor public eating, drinking, and bathing	Irrigation of edible crops that will be peeled, skinned, cooked, or thermally processed before consumption is allowed An indirect method that precludes direct contact with the reclaimed water (such as ridge and furrow irrigation) is

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water		_				
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	exceed 5 mg/l	do not		Existing or			facilities	permitted for
	before	adversely		proposed			• 100 feet	edible crops
	disinfection	impact		ponds (such as			between	that will not be
	Total nitrogen	vegetation		golf course			indoor	peeled,
	- 10 mg/l but	Continuous		ponds) are			aesthetic	skinned,
	may be less	monitoring for		appropriate for			features and	cooked, or
	stringent if	turbidity before		storage of			adjacent	thermally
	higher limit is	disinfection is		reuse water if			indoor public	processed
	still protective	required		the ability of			eating and	before
	of environment	 Operating 		the ponds to			drinking	consumption
	Secondary	protocol		function as			facilities when	Secondary
	Filtration	required		stormwater			in the same	treatment for
	Chemical	User/Supplier		management			room or	the purpose of
	addition prior	Agreement		systems is not			building	the manual
	to filtration may	Annual usage		impaired				refers to the
	be necessary	report						existing
	A chlorine	• Annual						treatment
	residual of	inventory						requirements
	0.5 mg/l or	submittal on						in the NJPDES
	greater is	commercial						permit, not
	recommended	operations						including the
	to reduce	using						additional
	odors, slime,	reclaimed						reclaimed
	and bacterial	water to						water for
	re-growth	irrigate edible						beneficial
		crop						reuse
								treatment
Nam Maria	. Adaminatali	- Facel californi						requirements
New Mexico	Adequately	Fecal coliform						Only surface
	treated and	sample taken						irrigation on
	disinfected	at point of						food crops with
	Fecal coliform	diversion to						no contact of
	- 1,000/100 ml	irrigation						reclaimed
		system						water on edible
								portion is
Obleton	- Drives		- Otto in all in the control	- Demoiss d.C.	- Deceded to the		- 400 fact to	permitted
Oklahoma	Primary tractment		Standby power	Required for	Based on the		• 100 feet to	Use not
	treatment		required for	periods when	lower of the	<u> </u>	adjacent	allowed on

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
			continuity of operation during power failures	available wastewater exceeds design hydraulic loading rate, and when the ground is saturated or frozen Based on water balance Must provide at least 90 days of storage above that required for primary treatment	two rates calculated for soil permeability and nitrogen requirements		property Additional distance may be required where prevailing winds could cause aerosols to drift into residential areas Buffer zone to be a part of the permitted site	food crops that can be eaten raw • May be used for irrigation of crops such as corn, wheat, and oats, provided a period of 30 days elapses between last application and harvest
Oregon	Unprocessed food: Level IV - biological treatment, clarification, coagulation, filtration, and disinfection Total coliform - 2.2/100 ml (7-day median) - 23/100 ml (maximum any sample) Turbidity - 2 NTU (24-hour mean)	Unprocessed food: Total coliform sampling once a day Turbidity hourly Processed food crops and orchards and vineyards: Total coliform sampling once a week	Standby power with capacity to fully operate all essential treatment processes Redundant treatment facilities and monitoring equipment to meet required levels of treatment Alarm devices to provide warning of loss of power and/or failure				Unprocessed food: None required Processed food and orchards and vineyards: 10 foot buffer for surface irrigation 70 foot buffer for spray irrigation	Surface irrigation required for orchards and vineyards No irrigation of processed food crops and orchards and vineyards 3 days prior to harvesting

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
State	- 5 NTU (5 percent of time during 24-hour period) Processed food crops and orchards and vineyards: • Level II - biological treatment and disinfection • Total coliform - 240/100 ml (2 consecutive samples) - 23/100 ml	nequirements	of process equipment	nequirements	nates	Worldown	Distances	Other
Texas	(7-day median) Direct contact with edible portion of crop unless food crop undergoes pasteurization process • Type I reclaimed water Reclaimed water on a 30 day average to have a quality of: • 5 mg/l BOD ₅ or CBOD ₅ • 10 mg/l for landscape impoundment • Turbidity	Direct contact with edible portion of crop unless food crop undergoes pasteurization process • Sampling and analysis twice per week for BOD₅ or CBOD₅, turbidity, and fecal coliform Direct contact with edible portion of crop not likely or where food crop undergoes			Based on water balance			Spray irrigation not permitted on food crops that may be consumed raw Other types of irrigation that avoid contact of reclaimed water with edible portions of food crops are acceptable Food crops that will be substantially processed prior to human consumption may be spray

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Otate	- 3 NTU	pasteurization	T domity Hondomity	ricquirements	riaics	ivioriitoring	Distances	irrigated
	Fecal coliform	Sampling and						inigateu
	- 20/100 ml	analysis once						
	(geometric	per week for						
	mean)	BOD₅ or						
	- 75/100 ml	CBOD ₅ on						
	(not to exceed	fecal coliform						
	in any sample)	lecal colliditi						
	Direct contact							
	with edible							
	portion of crop							
	not likely or							
	where food crop							
	undergoes							
	pasteurization							
	Type II							
	reclaimed							
	water							
	Reclaimed water							
	on a 30-day							
	average to have							
	a quality of:							
	• 30 mg/l BOD ₅							
	with treatment							
	using pond							
	system							
	• 20 mg/l BOD ₅							
	or 15 mg/l							
	CBOD ₅ with							
	treatment other							
	than pond							
	system							
	Fecal coliform							
	- 200/100 ml							
	(geometric							
	mean)							
	- 800/100 ml							
	(not to exceed							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements in any sample)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Utah	Spray irrigation of food crops: Type I treated wastewater - secondary treatment with filtration and disinfection 10 mg/l BOD (monthly average) Turbidity prior to disinfection - not to exceed 2 NTU (daily average) - not to exceed 5 NTU at any time Fecal coliform - none detected (weekly median as determined from daily grab samples) - 14/100 ml (not to exceed in any sample) 1.0 mg/l total residual chlorine after 30 minutes contact time at peak flow pH 6-9	Spray irrigation of food crops: Daily composite sampling required for BOD Continuous turbidity monitoring prior to disinfection Daily monitoring of fecal coliform Continuous total residual chlorine monitoring pH monitored continuously or by daily grab samples Surface irrigation of food crops: Weekly composite sampling required for BOD Daily composite sampling required for TSS Daily monitoring of	Alternative disposal option or diversion to storage required in case quality requirements not met				Spray irrigation of food crops: 50 feet to any potable water well Impoundments at least 500 feet from any potable water well Surface irrigation of food crops: 300 feet to any potable water well Impoundments at least 500 feet from any potable water well Impoundments at least 500 feet from any potable water well Public access to effluent storage and irrigation or disposal sites to be restricted by a stocktight fence or other comparable means	Type I treated wastewater required for spray irrigation of food crops where the applied reclaimed water is likely to have direct contact with the edible part Type II treated wastewater required for irrigation of food crops where the applied reclaimed water is not likely to have direct contact with the edible part, whether the food will be processed or not (spray irrigation not allowed)

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

	Reclaimed Water Quality and	Reclaimed Water		_		_		
0	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	0.1
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	Surface irrigation of food crops:	fecal coliform • pH monitored						
	Type II treated	continuously or						
	wastewater -	by daily grab						
	secondary	samples						
	treatment with	Samples						
	disinfection							
	• 25 mg/l BOD							
	(monthly							
	average)							
	• TSS							
	- 25 mg/l							
	(monthly							
	average)							
	- 35 mg/l							
	(weekly mean)							
	Fecal coliform							
	- 200/100 ml							
	(weekly median)							
	– 800/100 ml							
	(not to exceed							
	in any sample)							
	• pH 6 - 9							
Washington	Spray irrigation of	• BOD – 24-hour	Warning	Storage	Hydraulic	May be	Spray irrigation of	No orchard or
	food crops or	composite	alarms	required when	loading rate to	required	food crops or	vineyard fruit
	surface irrigation	samples	independent of	no approved	be determined	Monitoring	surface irrigation	may be
	of root crops:	collected at	normal power	alternative	based on a	program will be	of root crops:	harvested that
	Class A -	least weekly	supply	disposal	detailed water	based on	50 feet to any	has come in
	oxidized,	• TSS – 24-hour	Back-up power	system exists	balance	reclaimed	potable water	contact with
	coagulated,	composite	source	Storage	analysis	water quality	supply well	the irrigating
	filtered, and	samples	Emergency	volume		and quantity,	Surface irrigation	water or the
	disinfected	collected at	storage:	established by		site specific	of food crops:	ground
	Total coliform 2.2/100 ml	least daily	short-term,	determining		soil and	• 50 feet to	Effluent quality requirements
	- 2.2/100 ml (7-day mean)	Total coliform and dissolved	1 day; long-term,	storage period required for		hydrogeologic characteristics,	areas accessible to	requirements for processed
	- 23/100 ml	oxygen	20 days	duration of a		and other	the public and	food
	(single sample)	- grab samples	Multiple	10-year storm,		considerations	the use area	determined on

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
	Surface irrigation of food crops: Class B - oxidized and disinfected Total coliform - 2.2/100 ml (7-day mean) - 23/100 ml (single sample) irrigation of foods crops that undergo processing or surface irrigation of orchards and disinfected Total coliform - 240/100 ml (7-day mean) General compliance requirements: 30 mg/l BOD and TSS (monthly mean) Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) Minimum chlorine	collected at least daily Continuous on-line monitoring of turbidity	treatment units or storage or disposal options • Qualified personnel available or on call at all times the irrigation system is operating	using a minimum of 20 years of climatic data At a minimum, system storage capacity should be the volume equal to 3 times that portion of the average daily flow for which no alternative reuse or disposal system is permitted	Traco		property line 100 feet to any potable water supply Irrigation of food crops that undergo processing or surface irrigation of orchards and vineyards: 100 feet to areas accessible to the public and the use area property line 300 feet to any potable water supply	a case-by-case basis

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

State	Reclaimed Water Quality and Treatment Requirements residual of 1 mg/l after a	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
West Virginia	contact time of 30 minutes Secondary treatment and disinfection 30 mg/l BOD 30 mg/l TSS	Frequency of reporting determined on a case-by-case basis		Minimum of 90 days storage to be provided	Hydraulic - maximum application rates of 0.25 in/hr 0.50 in/day	Minimum of one well between project site and public well(s) or high	Fence to be placed at least 50 feet beyond spray area 350 feet from fence to	Analysis of crop required if used for human consumption
					2.0 in/wk	capacity private wells Minimum of one well in each direction of groundwater movement	adjacent property lines or highways unless low trajectory spray and/or physical buffers are provided	
Wyoming	Minimum of Class B wastewater - secondary treatment and disinfection Fecal coliform - greater than 2.2/100 ml but less than 200/100 ml	Treated wastewater to be analyzed for fecal coliform, nitrate as N, ammonia as N, and pH at a minimum Monitoring frequency - once per month for lagoon systems - once per	Multiple units and equipment Alternative power sources Alarm systems and instrumentation Operator certification and standby capability Bypass and dewatering capability Emergency	Emergency storage	Will be applied for the purpose of beneficial reuse and will not exceed the irrigation demand of the vegetation at the site Not to be applied at a rate greater than the agronomic rate for the vegetation at		30 feet to adjacent property lines 30 feet to all surface waters 100 feet to all potable water supply wells	Food crops not to be harvested for 30 days after application of treated wastewater
		frequency - once per month for lagoon systems	and standby capability • Bypass and dewatering capability		applied at a rate greater than the agronomic rate for the			

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-3. Agricultural Reuse – Food Crops

	Reclaimed Water Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
		Frequency			and time that			
		specified in			will not cause			
		NPDES permit			any surface			
		required if			runoff or			
		more frequent			contamination			
					of a			
					groundwater			
					aquifer			

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Alabama	Minimum EPA	- requirements	Controls	Based on	Based on soil	At least three	• 100 feet to	Categorized as
riabama	secondary, or		required to	water balance	permeability	downgradient	property lines	a form of land
	equivalent to		indicate any	performed on a	and nitrogen	monitoring	• 300 feet to	treatment
	secondary,		system	monthly basis	limits (10 mg/l	wells	existing	defined as use
	limits and		malfunction or	with a	nitrate)	At least one	habitable	of a
	appropriate		permit varied	precipitation	Excessive	upgradient	residences	vegetation-soil
	disinfection		field operations	input using a	rainwater run-	monitoring well	Spray irrigation	system to both
	If wastewater		noid operations	5-year, 24-	off should be	Contaminants	not allowed	renovate and
	stabilization			hour rainfall	diverted	in groundwater	within 100 feet	serve as the
	pond is used,			event, 30-year	Excessive	not to exceed	of any	ultimate
	pond must			minimum base	ponding should	primary and	perennial lake	receiver of
	meet ADEM			period	be avoided	secondary	or stream	treated
	requirements			In addition to		maximum	If irrigation	wastewater
	with second			storage		contaminant	causes an	
	cell being used			dictated by		levels	intermittent	
	as a holding			water balance,		Minimum	stream to	
	pond			a minimum of		depth to	become	
	 Mechanical 			15 days		groundwater,	perennial, the	
	systems, if			storage should		without use of	irrigation must	
	used, should			be provided for		an underdrain	cease within	
	allow as little			contingencies		collection	100 feet of the	
	nitrification as					system, shall	stream	
	possible					be 4 feet	Spray irrigation	
							not allowed in	
							wellhead	
							protection area	
							(WHPA 1) - if	
							no wellhead	
							delineation	
							exists,	
							minimum	
							distance for	
							application shall be 1.000	
							feet or as	
							required	
							No sites within	
							100 year	
							floodplain	
							noouplani	
Alaska	Secondary							Categorized as

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	treatment, and							land surface
	if discharge is							disposal
	potential health							defined as
	hazard,							disposal of
	disinfection							treated wastewater
	BOD₅ and TSS from source							onto the
	other than							surface of the
	stabilization							land in area
	pond							suitable for
	- 30 mg/l							that purpose
	(30-day							
	average)							
	- 45 mg/l							
	(7-day							
	average)							
	- 60 mg/l							
	(24-hour							
	average) • BOD₅ from							
	stabilization							
	pond							
	- 45 mg/l							
	(30-day							
	average)							
	and a percent							
	removal that is							
	not less than							
	65 percent by							
	weight							
	- 65 mg/l							
	(7-day							
	average)							
	Suspended Suspended							
	solids from stabilization							
	pond							
	- 70 mg/l							
	(30-day							
	average)							
	• pH 6 - 9							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Arizona	Class B	 Case-by-case 			 Application 			 Class B
	reclaimed water:	basis			rates based on			reclaimed
	 Secondary 				either the			water may be
	treatment and				water allotment			used for
	disinfection				assigned by			irrigation of
	 Fecal coliform 				the Arizona			pasture for
	- 200/100 ml				Department of			milking
	(not to exceed				Water			animals and
	in 4 of the last				Resources (a			livestock
	7 daily				water balance			watering (dairy
	samples)				that considers			animals)
	- 800/100 ml				consumptive			Class C
	(single sample				use of water by			reclaimed
	maximum)				the crop, turf,			water can be
	Class C				or landscape			used for
	reclaimed water:				vegetation) or			irrigation of
	 Secondary 				an alternative			pasture for
	treatment in a				approved			non-dairy
	series of				method			animals;
	wastewater							livestock
	stabilization							watering (non-
	ponds,							dairy animals);
	including							irrigation of
	aeration, with							sod farms,
	or without							fiber, seed,
	disinfection							forage, and
	Minimum total							similar crops;
	retention time							and silviculture
	of 20 days							
	 Fecal coliform 							
	- 1,000/100 ml							
	(not to exceed							
	in 4 of the last							
	7 daily							
	samples)							
	- 4,000/100 ml							
	(single sample	1						
	maximum)							
Arkansas	Primary			Based on	Hydraulic - 0.5	Required	Spray irrigation:	
	treatment			water balance	to 4.0 in/wk	One well	 200 feet 	
	Disinfection			using divisional	Nitrogen -	upgradient	• 1,320 feet to	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements also required when irrigating dairy cattle pasture land	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements average annual 90 percentile rainfall	Loading Rates percolate nitrate-nitrogen not to exceed 10 mg/l	Groundwater Monitoring 1 well within site One well downgradient More wells may be required on a case-by-case basis	Setback Distances (1) populated area Non-spray system: • 50 feet • 660 feet to populated area	Other
California	Ornamental nursery stock and sod farms where access by general public is not restricted, pasture for milking animals, and any nonedible vegetation where access is controlled so that the irrigated area cannot be used as if it were part of a park, playground, or schoolyard • Disinfected secondary-23 recycled water- oxidized and disinfected • Total coliform - 23/100 ml (7-day median) - 240/100 ml (not to exceed in more than one sample in any 30-day	Disinfected secondary-23 recycled water Total coliform — sampled at least once daily from the disinfected effluent	Warning alarms Back-up power source Multiple treatment units capable of treating entire flow with one unit not in operation or storage or disposal provisions Emergency storage or disposal: short-term, 1 day; long-term, 20 days Sufficient number of qualified personnel				No irrigation with, or impoundment of, disinfected secondary-23 recycled water within 100 feet of any domestic water supply well No irrigation with, or impoundment of, undisinfected secondary recycled water within 150 feet of any domestic water supply well No spray irrigation within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or schoolyard	Irrigation of ornamental nursery stock and sod farms will be allowed provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting, retail sale, or access by the general public

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water	Reclaimed Water						
	Quality and Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Ciaio	period)	rtoquiromonto	1 dointy 1 tondonity	rtoquiromonto	ratoo	Wierinterinig	Diotarioco	0 11101
	Non food-bearing							
	trees, ornamental							
	nursery stock and							
	sod farms, fodder							
	and fiber crops,							
	pasture for							
	animals not							
	producing milk for							
	human							
	consumption, and							
	seed crops not							
	eaten by humans:							
	 Undisinfected 							
	secondary							
	recycled water-							
	oxidized							
	wastewater							
Colorado	Oxidized and						• 500 feet to	Includes
00.0.00	disinfected						domestic	irrigation of
	Total coliform						supply well	pastures for
	- 23/100 ml						100 feet to any	milking
	(7-day median)						irrigation well	animals
							Setback from	
							property lines	
							based upon	
							use of	
							adjoining	
							property	
Delaware	Biological	Parameters		Storage	Maximum	Required	150 feet to all	Regulations
	treatment and	which may		provisions	design	One well	property	pertain to sites
	disinfection	require		required either	wastewater	upgradient of	boundaries	closed to
	• BOD ₅	monitoring		as a separate	loadings	site or	and the	public access
	- 50 mg/l at	include volume		facility or	limited to	otherwise	shoulder of	
	average	of water		incorporated into the	2.5 in/week • Maximum	outside the influence of the	internal and	
	design flow	applied to				site for	external public roads	
	- 75 mg/l at peak flow	spray fields, BOD.		pretreatment	instantaneous		100 feet to	
	Peak flow TSS	suspended		system • Minimum 15	wastewater application	background monitoring	perennial lake	
	1 1 1 3 3	suspeniced		• WIIIIIIIIII 13	application	monitoring	perennanake	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances ⁽¹⁾	Other
	- 50 mg/l for mechanical systems - 90 mg/l for ponds • Fecal coliform - not to exceed 200/100 ml at all times	solids, fecal coliform bacteria, pH, COD, TOC, ammonia nitrogen, nitrate nitrogen, total Kjeldahl nitrogen, total phosphorus, chloride, Na, K, Ca, Mg, metals, and priority pollutants Parameters and sampling frequency determined on a case-by-case basis		days storage required unless other measures for controlling flow are demonstrated • Must determine operational, wet weather, and water balance storage requirements	rates limited to 0.25 in/hour Design wastewater loading must be determined as a function of precipitation, evapotrans- piration, design percolation rate, nitrogen loading and other constituent loading limitations, groundwater and drainage conditions, and average and peak design wastewater flows and seasonal fluctuations	One well within wetted field area of each drainage basin intersected by site Two wells downgradient in each drainage basin intersected by site One well upgradient and 1 well downgradient of the pond treatment and storage facilities in each drainage basin intersected by site May require measurement of depth to groundwater, pH, COD, TOC, nitrate nitrogen, total phosphorus, electrical conductivity, chloride, fecal coliform bacteria, metals, and priority pollutants Parameters	or stream • 50 feet to edge of channelized, intermittent watercourse • If irrigation causes intermittent watercourse to become perennial, 100-foot buffer requirement will apply • Wetland buffers determined on a case-by-case basis	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring and sampling frequency determined on a case-by-case basis	Setback Distances (1)	Other
Florida	Secondary treatment and basic disinfection 20 mg/l CBOD₅ and TSS (annual average) 30 mg/l CBOD₅ and TSS (monthly average) 45 mg/l CBOD₅ and TSS (weekly average) 45 mg/l CBOD₅ and TSS (weekly average) 60 mg/l CBOD₅ and TSS (single sample) 10 mg/l TSS for subsurface application systems (single sample) Chlorine residual of 0.5 mg/l maintained after at least 15 minutes contact time at peak flow Fecal coliform - 200/100 ml (annual)	Parameters to be monitored and sampling frequency to be identified in wastewater facility permit Minimum schedule for sampling and testing based on system capacity established for flow, pH, chlorine residual, dissolved oxygen, suspended solids, CBOD₅, nutrients, and fecal coliform Primary and secondary drinking water standards to be monitored by facilities ≥ 100,000 gpd		At a minimum, system storage capacity shall be the volume equal to 3 times the portion of the average daily flow for which no alternative reuse or disposal system is permitted Water balance required with volume of storage based on a 10-year recurrence interval and a minimum of 20 years of climatic data Not required if alternative system is incorporated into the system design to ensure continuous facility operation	Site specific Design hydraulic loading rate - maximum annual average of 2 in/wk is recommended Based on nutrient and water balance assessments	Required One upgradient well located as close as possible to the site without being affected by the site's discharge (background well) One well at the edge of the zone of discharge downgradient of the site (compliance well) One well downgradient from the site and within the zone of discharge (intermediate well) Other wells may be required depending on site-specific criteria Quarterly monitoring	100 feet to buildings not part of the treatment facility, utility system, or municipal operation 100 feet to site property lines 500 feet to potable water supply wells and Class I and Class I and Class II surface waters 100 feet from reclaimed water transmission facility to public water supply wells 100 feet to outdoor public eating, drinking, and bathing facilities 500 feet from new unlined storage ponds to potable water supply wells Some setback	Public access will be restricted unless a subsurface application system is used Reclaimed water may be applied to pastures, wholesale nurseries, sod farms, forests, and areas used to grow feed, fodder, fiber, or seed crops Milking cows are not permitted to graze on land for a period of 15 days after last application of reclaimed water

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water Quality and	Reclaimed Water						
State	Treatment	Monitoring Peguirements	Treatment	Storage Requirements	Loading Rates	Groundwater	Setback Distances (1)	Other
State	Requirements average) - 200/100 ml (monthly geometric mean) - 400/100 ml (not to exceed in more than 10 percent of samples in a 30-day period) - 800/100 ml (single sample) • pH 6 - 8.5 • Limitations to be met after disinfection	Requirements	Facility Reliability	Requirements	Rates	Monitoring required for water level, nitrate, total dissolved solids, arsenic, cadmium, chloride, chromium, lead, fecal coliform, pH, and sulfate • Monitoring may be required for additional parameters based on site- specific conditions and groundwater quality	distances on be reduced if additional disinfection and reliability are provided or if alternative application techniques are used	Other
Georgia	Secondary treatment followed by coagulation, filtration, and disinfection 5 mg/l BOD 5 mg/l TSS Fecal coliform - 23/100 ml (monthly average) - 100/100 ml (maximum any sample) pH 6 - 9 Turbidity not to exceed 3 NTU prior to disinfection	Continuous turbidity monitoring prior to disinfection Weekly sampling for TSS and BOD Daily monitoring for fecal coliform Daily monitoring for pH Detectable disinfection residual monitoring	Multiple process units Ability to isolate and bypass all process units System must be capable of treating peak flows with the largest unit out of service Equalization may be required Back-up power supply Alarms to warn of loss of power supply,	Reject water storage equal to at least 3 days of flow at the average daily design flow One of the following options must be in place to account for wet weather periods - sufficient storage onsite or at the customer's location to handle the		quanty	Determined on a case-by-case basis	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
State	Detectable disinfectant residual at the delivery point	Requirements	failure of pumping systems, failure of disinfection systems, or turbidity greater than 3 NTU	flows until irrigation can be resumed - additional land set aside that can be irrigated without causing harm to the cover crop - An NPDES	Rates	Worldown	Distances	Ottlet
				permit for all or				
	<u> </u>			part of the flow				
Hawaii	R-1 water: Oxidized, filtered, and disinfected Fecal coliform - 2.2/100 ml (7-day median) - 23/100 ml (not to exceed in more than one sample in any 30-day period) - 200/100 ml (maximum any one sample) Inactivation and/or removal of 99.999 percent of the plaque-forming units of F-specific	Daily flow monitoring Continuous turbidity monitoring prior to and after filtration process Continuous measuring and recording of chlorine residual Daily monitoring of fecal coliform Weekly monitoring of BOD₅ and suspended solids	Multiple or standby units required with sufficient capacity to enable effective operation with any one unit out of service Alarm devices required for loss of power, high water levels, failure of pumps or blowers, high head loss on filters, high effluent turbidity, loss of coagulant or polymer feed.	20 days storage required unless it can be demonstrated that another time period is adequate or that no storage is necessary Storage requirements based on water balance using at least a 30-year record Reject storage required with a volume equal to 1 day of flow at the average daily design	Design application rate determined by water balance	Required Groundwater monitoring system may consist of a number of lysimeters and/or monitoring wells depending on site size, site characteristics, location, method of discharge, and other appropriate considerations One well upgradient and two wells downgradient	R-1 water: • Minimum of 50 feet to drinking water supply well • Outer edge of impoundment at least 100 feet from any drinking water supply well R-2 water: • For spray irrigation applications, 500 feet to residence property or a place where public exposure could be similar to that at a park,	R-1 water can be used for spray irrigation of pastures for milking and other animals R-2 water can be used with buffer for spray irrigation of sod farms, feed, fodder, fiber, and seed crops not eaten by humans, and timber and trees not bearing food crops R-2 water can be used for subsurface
	bacteriophage MS2, or polio virus		and loss of chlorine residual	flow • Emergency system storage		for project sites 500 acres or more	elementary school yard or athletic field	irrigation of pastures for milking and
	Detectable		Standby power	not required		One well within	Minimum of	other animals

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	turbidity not to		source	where an		the wetted field	100 feet to any	R-2 water can
	exceed 5 NTU		required for	alternate		area for each	drinking water	be used for
	for more than		treatment plant	effluent		project whose	supply well	surface, drip,
	15 minutes		and distribution	disposal		surface area is	Outer edge of	or subsurface
	and never to		pump stations	system has		greater than or	impoundment	irrigation of
	exceed 10		p =p =	been approved		equal to 1,500	at least 300	ornamental
	NTU prior to					acres	feet from any	plants for
	filtration					One lysimeter	drinking water	commercial
	Effluent					per 200 acres	supply well	use only if
	turbidity not to					One lysimeter	R-3 water:	plants are
	exceed 2 NTU					for project sites	Minimum of	harvested
	Chemical					that have	150 feet to	above any
	pretreatment					greater than 40	drinking water	portion
	facilities					but less than	supply well	contacted by
	required in all					200 acres	Outer edge of	reclaimed
	cases where					Additional	impoundment	water
	granular media					lysimeters may	at least 1000	R-3 water can
	filtration is					be necessary	feet to any	be used for
	used; not					to address	drinking water	drip, surface,
	required for					public health	supply well	or subsurface
	facilities using					concerns or	,	irrigation of
	membrane					environmental		feed, fodder,
	filtration					protection as		and fiber crops
	Theoretical					related to		not eaten by
	chlorine					variable		humans and
	contact time of					characteristics		timber and
	120 minutes					of the		trees not
	and actual					subsurface or		bearing food
	modal contact					of the		crops
	time of 90					operations of		(irrigation must
	minutes					the project		cease at least
	throughout							24 days before
	which the							harvest)
	chlorine							R-3 water can
	residual is							be used for
	5 mg/l							drip or surface
	R-2 water:							irrigation of
	 Oxidized and 							seed crops not
	disinfected							eaten by
	 Fecal coliform 							humans
	- 23/100 ml							R-2 water

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	(7-day median)							used in spray
	- 200/100 ml							irrigation will
	(not to exceed							be performed
	in more than							when the area
	one sample in							is closed to the
	any 30-day							public and the
	period)							public is
	 Theoretical 							absent from
	chlorine							the area, and
	contact time of							will end at
	15 minutes							least 1 hour
	and actual							before the area
	modal contact							is open to the
	time of 10							public
	minutes							Subsurface
	throughout							irrigation may
	which the							be performed
	chlorine							at any time
	residual is							
	0.5 mg/l							
	R-3 water:							
	Oxidized							
	wastewater							
Idaho	Unrestricted							Animals not to
	public access:							be grazed on
	Disinfected							land where
	primary							effluent is
	effluent							applied
	Total coliform							Animals not to
	- 230/100 ml							be fed
	(7-day median)							vegetation
	Restricted public						1	irrigated with
	access:							effluent until at
	Primary							least two
	effluent							weeks after
<u> </u>	 					<u> </u>		application
Illinois	Two-cell			Minimum	Based on the	Required	• 200 feet to	
	lagoon or			storage	limiting	One well	residential lot	
	mechanical			capacity equal	characteristic	upgradient for	lines	
	secondary			to at least 150	of the treated	determining	25 feet to any	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
Ctata	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback Distances (1)	Other
State	Requirements treatment	Requirements	Facility Reliability	Requirements days of	Rates wastewater	Monitoring background	residential lot	Other
	lleaunent			wastewater at	and the site	concentrations	line if	
				design	Balances must	Two wells	surrounded by	
				average flow	be calculated	downgradient	a fence with a	
				except in	and submitted	in the	minimum	
				southern	for water,	dominant	height of 40	
				Illinois areas where a	nitrogen, phosphorus,	direction of groundwater	inches No buffer	
				minimum 120	and BOD	movement	required if the	
				days of		Wells between	application and	
				storage		each potable	its associated	
				capacity to be		water well and	drying time	
				provided • Storage can		the application area if within	occur during a period when	
				be determined		1.000 feet	the area is	
				based on a		Monitoring of	closed to the	
				rational design		nitrates,	public	
				that must		ammonia		
				include capacity for the		nitrogen, chlorides,		
				wettest year		sulfates, pH,		
				with a 20-year		total dissolved		
				return		solids,		
				frequency		phosphate,		
						and coliform bacteria		
Indiana	Secondary	Daily	Alternate	Minimum of 90	Maximum	Dacteria	• 200 feet to	No restrictions
	treatment and	monitoring of	power source	days effective	hydraulic		potable water	are placed on
	disinfection	TSS, coliform	required	storage	loading rate of		supply wells or	fecal coliform
	• 30 mg/l BOD₅	and chlorine		capacity	2 in/week		drinking water	organisms
	30 mg/l TSS Fecal coliform	residual • Weekly		required			springs • 300 feet to any	where public access is
	- 200/100 ml	monitoring of					waters of the	strictly
	(7-day median)	BOD and pH					state	restricted
	- 800/100 ml	Monthly					300 feet to any	Feed and fiber
	(single sample)	monitoring of					residence	crops not to be
	pH 6 - 9Total chlorine	total nitrogen, ammonium						harvested for 30 days after
	residual at	nitrogen,						land
	least 1 mg/l	nitrate						application of
	after a	nitrogen,						wastewater

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements minimum contact time of 30 minutes (if chlorination is used for disinfection)	Reclaimed Water Monitoring Requirements phosphorus, and potassium Annual monitoring of arsenic, cadmium, copper, lead, mercury, nickel, selenium, and zinc	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other Turfgrass not to be harvested for 1 year after application of wastewater Grazing of animals prohibited for 30 days after land application of wastewater
lowa	At a minimum, treatment equivalent to that obtained from a primary lagoon cell Disinfection - required for all land application systems with spray irrigation application technique - must precede actual spraying of the wastewater on to a field area and must not precede storage - minimum contact time of 15 minutes with equipment necessary to maintain a	Monitoring of the following parameters required unless it has been demonstrated that they are present in insignificant amounts in the influent wastewater: total organic carbon, total dissolved solids, sodium absorption ratio, electrical conductivity, total nitrogen, ammonia nitrogen, organic nitrogen, nitrate nitrogen, total phosphorus,	Minimum of two storage cells required capable of series and parallel operation	Minimum days of storage based on climatic restraints When flows are generated only during the application period, a storage capacity of 45 days or the flow generated during the period of operation (whichever is less) must be provided When discharging to a receiving waterway on a periodic basis, storage for 180 days of average wet	Determined by using a water balance per month of operation For overland flow systems, maximum hydraulic application rate of 3 in/week	Monitoring required adjacent to the site both up and downstream of the site in reference to the general groundwater flow direction	300 feet to existing dwellings or public use areas (not including roads and highways) 400 feet to any existing potable water supply well not located on property 300 feet to any structure, continuous flowing stream or other physiographic feature that may provide direct connection between the groundwater table and the surface Wetted	Categorized as land application using slow rate (irrigation) and overland flow

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

Reclaiment Water Monitoring Requirements Rates Comparison of the Comparison of Comp
State Requirements Requirements Requirements Facility Reliability Requirements Rates Monitoring Monitoring Distances
State Requirements Requirements Requirements Facility Reliability Requirements Rates Monitoring Distances (1) Other
residual chlorine level of 0.5 mg/l alkalinity, hardness, trace elements, and colliform bacteria • Location of monitoring in effluent prior to site application • Reporting frequency depends on size of system Kansas • Secondary treatment with periodic discharge to surface waters • Primary treatment with no discharge • Primary treatment with no discharge • Based on soil • Property a lakalinity, hardness, trace delaments, and colliform to elements, and colliform application is the Additional application rate of 3 inface/day average dry weather flow when no saleaning application rate of 4 inface/day water supplies of 6 site property
chlorine level of 0.5 mg/l hardness, trace elements, and coliform bacteria • Location of monitoring in effluent prior to site application • Reporting frequency depends on size of system Kansas • Secondary treatment with periodic discharge to surface waters • Primary • Primary • Primary • Institute of the service of t
Name
trace elements, and coliform bacteria Location of monitoring in effluent prior to site application Reporting frequency depends on size of system Kansas Secondary treatment with periodic discharge to surface waters Primary Primary Preatment with no discharge Trace elements, and coliform bacteria delements, and coliform bacteria a minimum of 90-days average dry weather flow the mod to sharge to supple water supplies are so of 40 in/lacre of 6 if site property Intervent the property line of the land application site Additional requirements for Slow Rate System: 1.000 feet to any supply well of soft end on soil since of sina/day application rate of 3 in/lac/day application rate of 4 in/lac/day application rate of 40 in/lacre of 6 if site property
elements, and coliform bacteria Location of monitoring in effluent prior to site application Reporting frequency depends on size of system Kansas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Primary treatment with no discharge elements, and coliform application site Additional requirements for Slow Rate System: 1.000 feet to any shallow public water supply well 5.500 feet to any public lake or impoundment used as a source of raw water by a potable water supply supply application rate of 3 inac/clay application rate of 3 inac/clay application rate of 3 inac/clay application rate of 40 in/acre when no bear of 40 in/acre by property
Coliform bacteria Location of monitoring in effluent prior to site application Reporting frequency depends on size of system Kansas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Solo fied to any public lack or impoundment prior to retain a minimum of surface waters Primary treatment with no discharge Solo fied to any shallow public water supply well Solo feet to any public lake or impoundment used as a source of raw water by a potable water supply Storage provided to retain a minimum of 90-days average dry weather flow when no Based on soil Additional Requirements for Slow Rate Additional Requirements for Slow Rate System: 1 1,000 feet to any shallow public lake or impoundment used as a source of raw water by a potable water supply 500 feet to residential areas areas 200 feet to residential areas areas 4 200 feet to wells and water supplies off of site property
bacteria • Location of monitoring in effluent prior to site application • Reporting frequency depends on size of system Kansas • Secondary treatment with periodic discharge to surface waters • Primary treatment with no discharge • Date of size of system bacteria • Location of monitoring in effluent prior to site application in the efficiency of size of system Additional requirements for Slow Rate System: • 1,000 feet to any public water supply well • 500 feet to any public lake or impoundment used as a source of raw water by a potable water supply • Storage provided to retain a minimum of 90-days average dry weather flow when no beased on soil
Location of monitoring in effluent prior to site application Reporting frequency depends on size of system Kansas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Location of monitoring in effluent prior to site application and supplication and water supply well source of raw water by a potable water supply application rate of 3 in/ac/day average dry weather flow when no beased on soil Rapid Rapilcation rate of 40 in/acre of 60 site property
Maximum daily provided to retain a minimum of surface waters Primary treatment with no discharge Primary treatment with a size of system Primary treatment with periodic with the priodic of site application and provided to retain a minimum of sicharge Primary treatment with no discharge
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Reporting frequency depends on size of system Ransas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Reporting frequency depends on size of system Ransas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Reporting frequency depends on size of system Ransas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Reporting frequency depends on size of system Ransas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Ransas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Ransas Secondary treatment with periodic discharge to surface waters Possible water supply Site specific application rate of 3 in/ac/day annual annual application rate of 40 in/acre off of site property Ransas Secondary treatment with periodic discharge to surface waters Possible water supply Site specific residential areas of 3 in/ac/day annual annual application rate of 40 in/acre off of site property
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Kansas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge
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Kansas Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Primary treatment with no discharge Secondary treatment with periodic discharge to surface waters Primary treatment with no discharge Storage provided to provided to retain a of 3 in/ac/day application rate of 40 in/acre property Site specific Site specific Site specific Site specific Site specific Site specific Primary application rate of 40 in/acre of 40 in/acre of 40 in/acre of 40 in/acre of 500 feet to residential areas areas Papplication rate of 40 in/acre of 40 in/acre of 40 in/acre of 500 feet to residential areas of 200 feet to wells and water supplies off of site property
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no discharge when no • Based on soil property
water surface water moisture adjacent
is available and/or nutrient properties
requirements • Groundwater
of selected table a depth
crop of at least 10
feet beneath
i leei Dedeam

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
							area	
Maryland	70 mg/l BOD 90 mg/l TSS pH 6.5 - 8.5 Fecal coliform - 200/100 ml			Minimum of 60-days storage to be provided for all systems receiving wastewater flows throughout the year	Maximum application rate of 2 in/wk on annual average basis Water balance required based on wettest year in the last 10 years of record Actual application rate accepted must consider permeability of the soils, depth to	May be required One well upgradient of site Two wells adjacent to the property line and downgradient of site Monitoring frequency determined on a case-by-case basis	200 feet to property lines, waterways, and roads for spray irrigation 500 feet to housing developments and parks for spray irrigation Reduction of the buffer zone up to 50 percent will be considered with adequate windbreak	Categorized as land treatment
					groundwater, and the nutrient balance of the site		Minimum buffer zone of 50 feet for all other types of slow rate systems	
Massachusetts	Secondary treatment with filtration and disinfection pH 6 - 9 10 mg/l BOD₅ Turbidity - 2 NTU (average over 24-our period) - 5 NTU (not to exceed at any time) Fecal coliform - no detectable colonies	pH - daily BOD - weekly Turbidity - continuous monitoring prior to disinfection Fecal coliform - daily Disinfection UV intensity - daily or chlorine residual - daily TSS - twice per week	EPA Class I Reliability standards may be required Two independent and separate sources of power Unit redundancy Additional storage	Immediate, permitted discharge alternatives are required for emergency situations and for non- growing season disposal		Required Monitoring wells to be located and constructed to strategically sample the geologic units of interest between the discharges and sensitive receptors and withdrawal points Sensitive	100 feet to buildings, residential property, private wells, Class A surface water bodies, and surface water intakes Other than for private wells, using a green barrier in the form of hedges or trees placed	Includes use of reclaimed water for landscaping at nurseries Spray irrigation must take place during non-use hours and cannot result in any ponding

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
State	(7-day median) - 14/100 ml (single sample) • 5 mg/l TSS • 10 mg/l total nitrogen • Class I groundwater permit standards (SDWA Drinking Water Standards)	Nitrogen - twice per month Phosphorus - twice per month Heterotrophic plate count - quarterly MS-2 phage - quarterly Permit standards - variable testing requirements	Tuomy Nonabiny	requiente	ruics	receptors include, but are not limited to public and private wells, surface waters, embayments, and ACECs • Monitoring and testing frequency and parameters determined based on land use, effluent quality and quantity, and the sensitivity of receptors	at the dwelling side of the buffer may reduce the setback distance to 50 feet No spray irrigation directed into Zone I of public water supply wells	Othor
Michigan	pH 5.5 - 10 20 mg/l total inorganic nitrogen 0.5 mg/l nitrite 5 mg/l phosphorus 1 mg/l phosphorus if surface water body is downgradient within 1,000 feet Aluminum, 150 ug/l Chloride, 250 mg/l Sodium, 150 mg/l Sulfate, 250 mg/l	Flow measurement Grab samples collected and analyzed twice each month for ammonianitrogen, nitratenitrogen, nitrite-nitrogen, sodium, chloride, phosphorus, and pH			Daily, monthly, or annual design hydraulic loading rate shall not be more than 7 percent of the permeability of the most restrictive soil layer within the solum as determined by the saturated hydraulic conductivity method or 12 percent of the permeability as determined by the basin	May be required Monitoring requirements specific to each site	100 feet to property lines	Dairy animals shall not be allowed to graze on fields until 30 days after the application Allows irrigation of vegetated areas between May 1 and October 15 Governed by Michigan Department of Environmental Quality issued groundwater discharge permits Categorized as

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	• Iron, 300 ug/l				infiltration			slow rate land
	Manganese,				method			treatment
	50 ug/l				Annual			
	THM limits				hydraulic			
	Treatment				loading rate			
	technology				shall not be			
	standards for				more than 3			
	certain organic				percent of the			
	substances				permeability of			
	Additional				the solum			
	effluent criteria				when			
	determined on				determined by			
	a case-by-case				either the			
	basis				cylinder			
					infiltration			
					method or air			
					entry			
					permeameter			
Minanusi	. Tue etue eust			. Minimum of 45	test method	Minimum of	- 450 for all to	. Franc Mari 4 to
Missouri	Treatment equivalent to			Minimum of 45 days in south	Application rates shall in	one well	150 feet to	 From May 1 to October 30,
	that obtained			days in south with no	no case	between site	existing dwellings or	grazing of
	from primary			discharge	exceed	and public	public use	animals or
	wastewater			Minimum of 90	- 0.5 in/hour	supply well	areas.	harvesting of
	pond cell			days in north	- 1.0 in/day	Supply Well	excluding	forage shall be
	porta con			with no	- 3.0 in/week		roads or	deferred for 14
				discharge	Maximum		highways	days after
				Based on the	annual		• 50 feet to	irrigation
				design	application rate		property lines	• From
				wastewater	not to exceed		• 300 feet to	November 1 to
				flows and net	a range from 4		potable water	April 30,
				rainfall minus	to10 percent of		supply wells	grazing of
				evaporation	the design		not on	animals or
				expected for a	sustained		property,	harvesting of
				one in 1year	permeability		sinkholes, and	forage shall be
				return	rate for the		losing streams	deferred for 30
				frequency for	number of		or other	days after
				the storage	days per year		structure or	irrigation
				period selected	when soils are		physiographic	 Grazing of
					not frozen		feature that	dairy animals
					Nitrogen		may provide	generally not

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
State	Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
	7.004	. roqui on on o		· roqui o mone	loading not to exceed the amount of nitrogen that can be used by the vegetation to be grown	g	direct connection between the groundwater table and the surface	recommended unless there has been a much longer deferment period
Montana	Fodder, fiber, and seed crops: Oxidized wastewater Disinfection generally not required Pasture for milking animals: Oxidized and disinfected Fecal coliform - 23/100 ml (7-day median)	Effluent to be monitored on a regular basis to show the biochemical and bacteriological quality of the applied wastewater Monitoring frequency to be determined on a case-by-case basis			Nitrogen and hydraulic loadings determined based on methods in EPA Manual 625/1-81-013 Hydraulic loading must be based on the wettest year in ten years	Determined on a case-by-case basis Consideration is given to groundwater characteristics, past practices, depth to groundwater, cropping practices, etc.	100 feet to any water supply well Distance to surface water determined on a case-by-case basis based on quality of effluent and the level of disinfection Additional requirements for fodder, fiber, and seed crops: Fencing must be provided 200 feet between fencing and irrigated area 200 feet to any dwelling, including residential property	
Nebraska	Biological treatment	Site specific			Hydraulic loading rate should not exceed 4 in/wk Nitrogen loading not to	Site specific		

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water Quality and	Reclaimed Water	Treatment	Characte	l din -	One was deveated a	Cathaali	
State	Treatment Requirements	Monitoring Requirements	Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Otato	rtoquiromonto	requirements	1 dointy (tonability	requirements	exceed crop	Wormtoring	Biotarioco	Outoi
					uptake			
Nevada	Secondary treatment with disinfection 30 mg/l BOD₅ Disinfection Spray irrigation: Minimum buffer zone of 400 feet Fecal coliform - 200/100 ml (30-day geometric mean) - 400/100 ml (maximum daily number) Minimum buffer zone of 800 feet Fecal coliform - no limit Surface irrigation: Fecal coliform - 200/100 ml (30-day geometric mean) - 400/100 ml (30-day geometric mean) - 400/100 ml (maximum daily number)						Spray irrigation: • 400 foot or 800 foot minimum buffer required depending on disinfection level Surface irrigation: • None required	Includes irrigation of land used for pasture or other agricultural purposes except growing crops for human consumption Public access to site is prohibited Includes irrigation of land used for pasture or other land used in the
New Jersey	Fecal coliform - 200/100 ml	Submission of Standard		Not required when another	Hydraulic loading rate		500 feet to potable water	Secondary treatment, for
	(monthly	Operations		permitted	- maximum		supply wells	the purpose of
	average,	Procedure that		reuse system	annual		that are	the manual,
	geometric	ensures proper		or effluent	average of		existing or	refers to the
	mean)	disinfection to		disposal	2 in/wk but		have been	existing
	- 400/100 ml	the required		system is	may be		approved for	treatment
	(maximum any	level of		incorporated	increased		construction	requirements
	one sample)	1.0 mg/l		into the system	based on a		 100 feet 	in the NJPDES

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	Minimum chlorine residual -1.0 mg/l after 15-minute contact at peak hourly flow Alternative methods of disinfection, such as UV and ozone, may be approved TSS - existing treatment requirements as specified in the NJPDES permit for the discharge Total nitrogen - 10 mg/l but may be less stringent if higher limit is still protective of environment Secondary	Chlorination levels should be continually evaluated to ensure the reclaimed water will not adversely impact vegetation Annual usage report		design If system storage ponds are used, they do not have to be lined Reject storage ponds shall be lined or sealed to prevent measurable seepage Existing or proposed ponds (such as golf course ponds) are appropriate for storage of reuse water if the ability of the ponds to function as stormwater management systems is not impaired	site-specific evaluation The distribution of reclaimed water shall not produce surface runoff or ponding Land application sites shall not be frozen or saturated when applying reclaimed water		provided from a reclaimed water transmission facility to all potable water supply wells 500 feet from FW1 surface waters, Pineland Waters and Shellfish Waters All other surface water setback distances shall be established on a case-bycase basis 100 feet from outdoor public eating, drinking, and bathing facilities	permit, not including the additional reclaimed water for beneficial reuse treatment requirements • A chlorine residual of 0.5 mg/l or greater is recommended to reduce odors, slime and bacterial re-growth • For a period of 15 days from the last application of reclaimed water, land application areas shall not be used for the grazing of cattle whose milk is intended for human consumption
New Mexico	Fodder, fiber, and seed crops: • Primary effluent Pastures for milking cows • Adequately	Fecal coliform sample taken at point of diversion to irrigation system						

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements disinfected Fecal coliform - 100/100 ml	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
New York	Secondary treatment and disinfection	Flow measurement and wastewater characteristics		Two weeks plus any flow generated in prohibited time period (includes rainfall events)	Hydraulic - 3 in/wk Organic - 600 lbs of BOD/acre/day Maximum salinity - 1,000 mg/l	Required Minimum of three off-field wells	200 feet to surface waters, dwellings and public roadways	Spray irrigation should be practiced only from May 1 to November 30 and only during daylight hours Categorized as land treatment
North Dakota	If waste stabilization ponds are used - minimum 180 days capacity without consideration for evaporation Representative sample of reclaimed water must be submitted to determine suitability for irrigation				Site specific Based on soils type and type of vegetation Application rates generally between 0.5 to 4 in/wk			Areas readily accessible to humans or animals, such as pastures being grazed by dairy animals, hay crops ready for harvesting, or garden crops for human consumption, should not be irrigated
Ohio	Biological treatment Disinfection should be considered 40 mg/l CBOD5 Fecal coliform (30-day average)	Large system monitoring (150,000 to 500,000 gpd): • Twice weekly for CBOD ₅ , total coliform (when irrigating) and storage		Operational storage of 4 times the daily design flow needed Storage provisions for at least 130 days of design average flow	Determined by calculating a water and nutrient balance	Monitoring wells upgradient and downgradient of large irrigation systems Monitoring wells should be sampled at	100 feet to private water well 300 feet to community water well 100 feet to sink hole 50 feet to drainage way	Includes agricultural sites where nonhuman food crops are grown

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water	T	01	L P	0	0.0	
Ctoto	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback Distances ⁽¹⁾	Othor
State	Requirements - 23/100 ml	Requirements	Facility Reliability	Requirements	Rates	Monitoring		Other
	with no public	volume • Monthly		needed for periods when		the beginning and the end of	50 feet to surface water	
	access buffer	monitoring for		irrigation is not		the irrigation	100 feet to	
	- 1.000/100 ml	total inorganic		recommended		season	road right-of-	
	with 100 foot	nitrogen		Actual storage		3643011	way without	
	public access	Daily		requirements			windbreak	
	buffer	monitoring for		determined by			using spray	
	- No	flow		performing			irrigation	
	disinfection	Small system		water balance			10 feet to road	
	necessary with	monitoring:		Permits can be			right-of-way	
	200 foot or	(<150,000 gpd)		obtained for			with windbreak	
	more public	Weekly		stream			or with flood	
	access buffer	monitoring of		discharge			irrigation	
	Limits for	CBOD₅ and		during winter			50 feet to	
	metals	storage		and times of			property line	
		volume		high stream				
		Monthly		flow to reduce				
		monitoring of		storage needs				
		total coliform • Daily						
		monitoring of						
		flow						
		IIOW						
Oklahoma	Primary		Standby power	Required for	Based on the		• 100 feet to	
	treatment		required for	periods when	lower of the		adjacent	
			continuity of	available	two rates		property Additional	
			operation during power	wastewater exceeds	calculated for soil		Additional distance may	
			failures	design	permeability		be required	
			ialiules	hydraulic	and nitrogen		where	
				loading rate,	requirements		prevailing	
				and when the	1 Squironionts		winds could	
				ground is			cause aerosols	
				saturated or			to drift into	
				frozen			residential	
				Based on			areas	
				water balance			Buffer zone to	
				Must provide			be a part of the	
				at least 90			permitted site	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements days of storage above that required for primary treatment	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Oregon	Pasture for animals, sod, ornamental nursery stock, christmas trees, and firewood Level II - biological treatment and disinfection Total coliform - 240/100 ml (2 consecutive samples) - 23/100 ml (7 day median) Fodder, fiber, and seed crops not for human ingestion and commercial timber Level I - biological treatment	Pasture for animals, sod, ornamental nursery stock, christmas trees, and firewood Total coliform sampling 1 time per week Fodder, fiber, and seed crops not for human ingestion and commercial timber None required	Standby power with capacity to fully operate all essential treatment processes Redundant treatment facilities and monitoring equipment to meet required levels of treatment Alarm devices to provide warning of loss of power and/or failure of process equipment				Pasture for animals, sod, ornamental nursery stock, christmas trees, and firewood 10-foot buffer with surface irrigation 70-foot buffer with spray irrigation Fodder, fiber, and seed crops not for human ingestion and commercial timber 10 foot buffer with surface irrigation Site specific requirements with spray irrigation	Pasture for animals, sod, ornamental nursery stock, christmas trees, and firewood No animals on pasture during irrigation No irrigation days prior to harvesting Fodder, fiber, and seed crops not for human ingestion and commercial timber No irrigation Spray irrigation for 30 days prior to harvesting Spray irrigation may be permitted if it can be demonstrated that public health and the environment will be adequately protected from aerosols
Pennsylvania	 Secondary 			 Storage 	 Hydraulic 	A minimum of		 Categorized as

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	treatment and			requirements	loading rates	two wells must		land
	disinfection			determined	based on a	be located		application of
	 Minimum of 85 			using daily,	water balance	downgradient		treated
	percent			weekly, or	that includes	of the		sewage
	removal of			monthly water	precipitation,	application		 Pertains to
	CBOD₅ and			balance	infiltration rate,	area		slow rate
	TSS			calculations	evapotrans-			infiltration
	Concentration			Seasonal	piration, soil			systems
	levels based			discharge to	storage			
	on a 30-day			surface waters	capabilities,			
	average			may be an	and subsoil			
	- 25 mg/l			alternative to	permeability			
	CBOD5			storage	Application			
	- 30 mg/l TSS • Fecal coliform				rates both site and waste			
	- 200/100 ml				specific			
	(monthly				Application			
	geometric				rates greater			
	average)				than 2 in/ac/wk			
	• pH 6 - 9				generally not			
	p 0				considered			
		N. P. C.					000 () (
South Carolina	Secondary	Nitrate			Hydraulic -	Required	• 200 feet to	
	treatment and	monitoring			maximum of 0.5-2 in/wk	One well	surface waters	
	disinfection ■ BOD₅ and TSS	required				upgradient • Two wells	of the state, occupied	
	- 30 mg/l				depending on depth to	downgradient	buildings, and	
	(monthly				groundwater	At larger sites,	potable water	
	average)				A nitrate to	more	wells	
	- 45 mg/l				nitrogen	monitoring	• 100 feet to	
	(weekly				loading	wells may be	property	
	average)				balance may	required	boundary	
	Total coliform				be required			
	- 200/100 ml				Application			
	(monthly				rates in excess			
	average)				of 2 in/wk may			
	- 400/100 ml				be approved			
	(daily				provided the			
	maximum)				application is			
					only for a			
					portion of the			

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates year; requires a water balance for the summer season	Groundwater Monitoring	Setback Distances ⁽¹⁾	Other
South Dakota	Secondary treatment			Minimum of 210 days capacity without consideration for evaporation	Maximum application rate limited to 2 in/acre/wk or a total of 24 in/acre/yr	Shallow wells in all directions of major groundwater flow from site and no more than 200 feet outside of the site perimeter, spaced no more than 500 feet apart, and extending into the groundwater table Shallow wells within the site are also recommended	1 mile from municipal water supply _ mile from private domestic water supply, lakes, and human habitation _ mile from state parks and recreation areas unless disinfected 100 feet from neighboring property lines or road right of ways	Does not include pastures used for dairy grazing
Tennessee	Biological treatment Treated to a level afforded by lagoons Disinfection generally not required, however can be required when deemed necessary	Site specific		Storage requirements determined by either of two methods 1) use of water balance calculations or, 2) use of a computer program that was developed based upon an extensive	Nitrogen - percolate nitrate-nitrogen not to exceed 10 mg/l Hydraulic - based on water balance using 5-year return monthly precipitation	Required	Surface Irrigation: 100 feet to site boundary 50 feet to onsite streams, ponds, and roads Spray Irrigation: [1] Open Fields 300 feet to site boundary 150 feet to onsite streams, ponds, and	

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water	5						
	Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
otato	requirements	requiements	radinty reliability	NOAA study of climatic variations throughout the United States	ivaics	Worldown	roads [2] Forested • 150 feet to site boundary • 75 feet to onsite streams, ponds, and roads	Outer
Texas	Type I reclaimed water: • 5 mg/l BOD₅ or CBOD₅ (30-day average) • 10 mg/l for landscape impoundment (30-day average) • Turbidity • 3 NTU • Fecal coliform • 20/100 ml (geometric mean) • 75/100 ml (not to exceed in any sample) Type II reclaimed water: • 30 mg/l BOD₅ with treatment using pond system (30-day average) • 20 mg/l BOD₅ or 15 mg/l CBOD₅ with treatment other than pond system (30-day average)	Type I reclaimed water: • Sampling and analysis twice per week for BOD₅ or CBOD₅, turbidity, and fecal coliform Type II reclaimed water: • Sampling and analysis once per week for BOD₅ or CBOD₅ and fecal coliform			Based on water balance		.5335	Type I reclaimed water can be used for irrigation of pastures for milking animals Type II reclaimed water can be used for irrigation of sod farms, silviculture, and animal feed crops

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements • Fecal coliform	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
	- 200/100 ml (geometric mean) - 800/100 ml (not to exceed in any sample)							
Utah	Type I treated wastewater: Secondary treatment with filtration and disinfection 10 mg/l BOD (monthly average) Turbidity prior to disinfection not to exceed 2 NTU (daily average) not to exceed 5 NTU at any time Fecal coliform none detected (weekly median as determined from daily grab samples) 14/100 ml (not to exceed in any sample) 1.0 mg/l total residual chlorine after 30 minutes contact time at peak flow	Type I treated wastewater: Daily composite sampling required for BOD Continuous turbidity monitoring prior to disinfection Daily monitoring of fecal coliform Continuous total residual chlorine monitoring pH monitored continuously or by daily grab samples Type II treated wastewater: Weekly composite sampling required for BOD Daily composite sampling required for sa	Alternative disposal option or diversion to storage required in case quality requirements not met				Type I treated wastewater: 50 feet to any potable water well Impoundments at least 500 feet from any potable water well Type II treated wastewater: 300 feet to any potable water well 300 feet to any potable water well Impoundments at least 500 feet from any potable water well Public access to effluent storage and irrigation or disposal sites to be restricted by a stocktight fence or other comparable	Type I reclaimed water can be used for irrigation of pastures for milking animals Type II reclaimed water can be used for irrigation of sod farms, silviculture, and animal feed crops

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

	Reclaimed Water Quality and	Reclaimed Water						
Stato	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	Othor
State	Requirements • pH 6 - 9 Type II treated wastewater: • Secondary treatment with disinfection • 25 mg/l BOD (monthly average) • TSS - 25 mg/l (monthly average) - 35 mg/l (weekly mean) • Fecal coliform - 200/100 ml (weekly median)	Requirements TSS Daily monitoring of fecal coliform pH monitored continuously or by daily grab samples	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	- 800/100 ml (not to exceed in any sample) • pH 6 - 9							
Vermont	Minimum of secondary treatment Tertiary treatment with nitrogen and phosphorus removal can be provided instead of secondary treatment BOD <30 mg/l at any time TSS <30 mg/l at any time Disinfection with 20 minute		Multiple units required Alternative power source required Retention pond or tank required with volume sufficient to hold the design flow for 48 hours	Storage sized so that the system can operate effectively without having to spray during the spring runoff months Minimum storage capacity required - 45 days of design flow	2 in/wk for systems with secondary treated effluent 2.5 in/wk for systems with tertiary treatment with nitrogen and phosphorus removal Maximum hourly application rate of 0.25 in/hour based on actual wetted area		100 feet to edge of any surface water 200 feet to, habitation, property lines, roads, or areas frequented by the public 200 feet to any water supply	Categorized as spray disposal system

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements chlorine contact time immediately prior to spraying 1.0 ppm free chlorine residual or 4.0 ppm total chlorine residual at the	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Washington	spray nozzle Class D: Oxidized and disinfected Total coliform - 240/100 ml (7 day mean) Class C: Oxidized and disinfected Total coliform - 23/100 ml (7-day mean) - 240/100 ml (single sample) General compliance requirements: 30 mg/l BOD and TSS (monthly mean) Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) Minimum chlorine	BOD – 24-hour composite samples collected at least weekly TSS – 24-hour composite samples collected at least daily Total coliform and dissolved oxygen grab samples collected at least daily Continuous on-line monitoring of turbidity	Warning alarms independent of normal power supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple treatment units or storage or disposal options Qualified personnel available or on call at all times the irrigation system is operating	Storage required when no approved alternative disposal system exists Storage volume established by determining storage period required for duration of a 10-year storm, using a minimum of 20 years of climatic data At a minimum, system storage capacity should be the volume equal to 3 times that portion of the average daily flow for which no alternative reuse or	Hydraulic loading rate to be determined based on a detailed water balance analysis	May be required Monitoring program will be based on reclaimed water quality and quantity, site specific soil and hydrogeologic characteristics, and other considerations	Class D: • 100 feet to areas accessible to the public and the use area property line • 300 feet to any potable water supply Class C: • 50 feet to areas accessible to the public and use area property line • 100 feet to any potable water supply well	Class D reclaimed water can be used for irrigation of trees or fodder, fiber, and seed crops Class C reclaimed water can be used for irrigation of sod, ornamental plants for commercial use, or pasture to which milking cows or goats have access

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements residual of 1 mg/l after a contact time of	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements disposal system is permitted	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
West Virginia	30 minutes • Secondary treatment and disinfection • 30 mg/l BOD₅ • 30 mg/l TSS	Frequency of reporting determined on a case-by-case basis		Minimum of 90 days storage to be provided	Hydraulic - maximum application rates of 0.25 in/hr 0.50 in/day 2.0 in/wk	Minimum of one well between project site and public well(s) or high capacity private wells Minimum of one well in each direction of groundwater movement	Fence to be placed at least 50 feet beyond spray area 350 feet from fence to adjacent property lines or highways unless low trajectory spray and/or physical buffers are provided	Analysis of crop required at harvest if used for animal consumption
Wisconsin	Biological, chemical, physical or a combination of treatments necessary to meet effluent standards Monthly average BOD₅ may not exceed 50 mg/l Fecal coliform bacteria limits based on potential impact to public health Nitrogen limits based on needs of cover	Total daily flow monitored Monthly monitoring for total dissolved solids, chlorides, BOD ₅ , organic nitrogen, ammonia nitrogen and nitrate plus nitrite nitrogen Fecal coliform bacteria monitoring may be required on a case-by-case basis Soil at each		Storage lagoons required for systems adversely affected by winter conditions or wet weather	Determined on a case-by-case basis Based on hydrogeologic conditions, soil texture, permeability, cation exchange capacity, topography, cover crop, and wastewater characteristics Average hydraulic application rate may not exceed 10,000	Required for design flows greater than 0.015 mgd Monitoring may be required for elevation, BOD ₅ , field specific conductance, COD, organic nitrogen, ammonia nitrogen, nitrate plus nitrite nitrogen, chlorides, sulfates, total dissolved solids,	250 feet to private water supply wells 1,000 feet to public water supply wells	Categorized as land disposal

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-4. Agricultural Reuse – Non-Food Crops

State	Reclaimed Water Quality and Treatment Requirements crop plus demonstrable denitrification	Reclaimed Water Monitoring Requirements individual spray field tested annually for nitrogen, available phosphorus, available potassium, and pH	Treatment Facility Reliability	Storage Requirements	Loading Rates gal/acre/day	Groundwater Monitoring alkalinity, hardness, temperature, and pH	Setback Distances (1)	Other
Wyoming	Minimum of Class C wastewater-primary treatment and disinfection Fecal coliform - 200/100 ml or greater but less than 1000/100 ml	Treated wastewater to be analyzed for fecal coliform, nitrate as N, ammonia as N, and pH at a minimum Monitoring frequency - once per month for lagoon systems - once per week for mechanical systems Frequency specified in NPDES permit required if more frequent	Multiple units and equipment Alternative power sources Alarm systems and instrumentation Operator certification and standby capability Bypass and dewatering capability Emergency storage	Emergency storage	Will be applied for the purpose of beneficial reuse and will not exceed the irrigation demand of the vegetation at the site Not to be applied at a rate greater than the agronomic rate for the vegetation at the site Will be applied in a manner and time that will not cause any surface runoff or contamination of a groundwater aquifer		30 feet to adjacent property lines 30 feet to all surface waters 100 feet to all potable water supply wells 100-foot buffer zone around spray site Spray Irrigation: 100 feet to adjacent property lines and any public right-of-way Flood Irrigation: 30 feet to adjacent property lines and any public right-of-way Flood Irrigation: 30 feet to adjacent property lines and any public right-of-way	Pertains to irrigation on agricultural lands supporting indirect food chain crops Animals not allowed to graze on land for 30 days after reclaimed water application

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-5. Unrestricted Recreational Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
California	Disinfected	Total coliform -	Warning	'			• No	
	tertiary	sampled at	alarms				impoundment	
	recycled water	least once	Back-up power				of disinfected	
	that has been	daily from the	source				tertiary	
	subjected to	disinfected	Multiple				recycled water	
	conventional	effluent	treatment units				within 100 feet	
	treatment (see	Turbidity -	capable of				of any	
	monitoring	continuously	treating entire				domestic water	
	requirements if	sampled	flow with one				supply well	
	recycled water	following	unit not in					
	has not	filtration	operation or					
	received	Monitoring	storage or					
	conventional	requirements if	disposal					
	treatment) -	recycled water	provisions					
	oxidized,	has not received	Emergency					
	coagulated	conventional	storage or					
	(not required if	treatment:	disposal:					
	membrane	Sampled and	short-term,					
	filtration is	analyzed	1 day;					
	used and/or	monthly for	long-term,					
	turbidity	Giardia, enteric	20 days					
	requirements	viruses, and	Sufficient					
	are met),	Cryptosporidium	number of					
	clarified,	for first 12	qualified					
	filtered,	months and	personnel					
	disinfected	quarterly						
	Total coliform	thereafter						
	measured at a	 Samples to be 						
	point between	taken at a						
	the disinfection	point following						
	process and	disinfection						
	the point of	and prior to the						
	entry to the	point where						
	use	recycled water						
	impoundment	enters the use						
	- 2.2/100 ml	impoundment						
	(7 day median)	Ongoing						
	- 23/100 ml	monitoring						
	(not to exceed	may be						
	in more than	discontinued						

Table A-5. Unrestricted Recreational Reuse

Reclaimed Water Quality and Treatment Requirements State Reclaimed Water Treatment Requirements One sample in any 30-day period) - 240/100 ml (maximum any one sample) Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum average of
Treatment Requirements Requirements Facility Reliability Requirements Storage Requirements Rates Monitoring Groundwater Setback Distances Other Treatment Requirements Requirements Facility Reliability Requirements Rates Monitoring Distances Other Treatment Requirements Facility Reliability Requirements Rates Monitoring Distances Other Treatment Requirements Facility Reliability Requirements Rates Monitoring Distances Other Treatment Requirements Facility Reliability Requirements Rates Monitoring Distances Other Treatment Requirements Facility Reliability Requirements Rates Monitoring Distances Other Treatment Requirements Facility Reliability Requirements Rates Monitoring Distances Other Treatment Requirements Facility Reliability Requirements Rates Monitoring Distances Other Treatment Facility Reliability Requirements Rates Monitoring Distances Distances Other Treatment Facility Reliability Requirements Rates Monitoring Distances Distances Distances Other Distances Di
State Requirements Requirements Facility Reliability Requirements Rates Monitoring Distances Other one sample in any 30-day period) operation with - 240/100 ml (maximum any one sample) • Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
one sample in any 30-day period) operation with approval - 240/100 ml (maximum any one sample) • Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
any 30-day period) - 240/100 ml (maximum any one sample) - Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
period) - 240/100 ml (maximum any one sample) • Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
- 240/100 ml (maximum any one sample) • Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
(maximum any one sample) • Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
one sample) Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
Turbidity requirements for wastewater that has been coagulated and passed through natural undisturbed soils or a bed of filter media - maximum
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undisturbed soils or a bed of filter media - maximum
soils or a bed of filter media - maximum
of filter media - maximum
- maximum
average of
average of the second s
2 NTU within a
24-hour period
- not to exceed
5 NTU more
than 5 percent
of the time
within a
24-hour period
- maximum of
10 NTU at any
time
• Turbidity
requirements
for wastewater
passed
through
membrane
- not to exceed
0.2 NTU more
than 5 percent
of the time
within a

Table A-5. Unrestricted Recreational Reuse

State	Reclaimed Water Quality and Treatment Requirements 24-hour period - maximum of 0.5 NTU at any time	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
Colorado	Oxidized, coagulated, clarified, filtered, and disinfected Total coliform - 2.2/100 ml (7-day median) - 23/100 ml (not to exceed in more than one sample in any 30-day period)						500 feet from impoundment to domestic supply well 100 feet from impoundment to any irrigation well	
Nevada	At a minimum, secondary treatment with disinfection 30 mg/l BOD ₅ Fecal coliform - 2.2/100 ml (30-day geometric mean) - 23/100 ml (maximum daily number)							
Oregon	Level IV - biological treatment, clarification, coagulation, filtration, and disinfection Total coliform	Total coliform sampling - 1/day Turbidity - hourly	Standby power with capacity to fully operate all essential treatment processes Redundant treatment					

Table A-5. Unrestricted Recreational Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
	- 2.2/100 ml		facilities and					
	(7-day median)		monitoring					
	- 23/100 ml		equipment to					
	(maximum any		meet required					
	sample)		levels of					
	Turbidity		treatment					
	- 2 NTU		 Alarm devices 					
	(24-hour		to provide					
	mean)		warning of loss					
	- 5 NTU		of power					
	(5 percent of		and/or failure					
	time during 24-		of process					
	hour period)		equipment					
Texas	Type I	Sampling and						
	reclaimed	analysis twice						
	water	per week for						
	Reclaimed water	BOD₅ or						
	on a 30 day	CBOD ₅ ,						
	average to have	turbidity, and						
	a quality of:	fecal coliform						
	5 mg/l BOD₅ or							
	CBOD ₅							
	 Turbidity 							
	- 3 NTU							
	Fecal coliform							
	- 20/100 ml							
	(geometric							
	mean)							
	- 75/100 ml							
	(not to exceed							
1 14-1-	in any sample)	a Doily	A Manachine		<u> </u>		a loop our des set	
Utah	Type I treated	• Daily	Alternative diamonal antion				Impoundments the set 500.	
	wastewater	composite	disposal option				at least 500	
	- secondary	sampling	or diversion to				feet from any	
	treatment with	required for BOD	storage				potable water	
	filtration, and	Continuous	required if				well	
	disinfection		turbidity or chlorine					
	10 mg/l BOD (monthly)	turbidity	residual					
	(monthly	monitoring						
	average)	prior to	requirements					

Table A-5. Unrestricted Recreational Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
	Turbidity prior to disinfection - not to exceed 2 NTU (daily average) - not to exceed 5 NTU at any time Fecal coliform - none detected (weekly median as determined from daily grab samples) - 14/100 ml (not to exceed in any sample) 1.0 mg/l total residual chlorine after 30 minutes contact time at peak flow pH 6 - 9	disinfection Daily monitoring of fecal coliform Continuous total residual chlorine monitoring Honitored continuously or by daily grab samples	not met		Traico	J		
Washington	Class A - oxidized, coagulated, filtered, and disinfected Total coliform - 2.2/100 ml (7-day mean) - 23/100 ml (single sample) 30 mg/l BOD and TSS (monthly	BOD – 24-hour composite samples collected at least weekly TSS – 24-hour composite samples collected at least daily Total coliform and dissolved oxygen	Warning alarms independent of normal power supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple	Storage required when no approved alternative disposal system exists Storage volume established by determining storage period required for duration of a		May be required Monitoring will be based on reclaimed water quality and quantity, site-specific soil and hydrogeologic characteristics, and other considerations	Unlined impoundments 500 feet between perimeter and any potable water supply well Lined impoundments 100 feet between perimeter and	Nutrient removal to reduce levels of phosphorus and/or nitrogen is recommended to minimize algal growths and maintain acceptable aesthetic conditions

Table A-5. Unrestricted Recreational Reuse

State	Reclaimed Water Quality and Treatment Requirements mean) Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) Minimum chlorine	Reclaimed Water Monitoring Requirements - grab samples collected at least daily • Continuous on-line monitoring of turbidity	Treatment Facility Reliability treatment units or storage or disposal options • Qualified personnel available or on call at all times the irrigation	Storage Requirements 10-year storm, using a minimum of 20 years of climatic data • At a minimum, system storage capacity should be the	Loading Rates	Groundwater Monitoring	Setback Distances any potable water supply well	Other
	residual of 1 mg/l after a contact time of 30 minutes		system is operating	volume equal to 3 times that portion of the average daily				
				flow for which no alternative				
				reuse or disposal				
				system is permitted				

Table A-6. Restricted Recreational Reuse

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
Arizona	Class A reclaimed water-secondary treatment, filtration, and disinfection Chemical feed facilities required to add coagulants or polymers if necessary to meet turbidity criterion Turbidity - 2 NTU (24 hour average) - 5 NTU (not to exceed at any time) Fecal coliform - none detectable in 4 of last 7 daily samples - 23/100 ml	Case-by-case basis	racinty renability	Requirements	Rates	WorldOlling	Distances	Other
	(single sample							
California	maximum) • Disinfected secondary-2.2 recycled water-oxidized and disinfected • Total coliform - 2.2/100 ml (7-day median) - 23/100 ml (not to exceed in more than	Total coliform - sampled at least once daily from the disinfected effluent	Warning alarms Back-up power source Multiple treatment units capable of treating entire flow with one unit not in operation or				No impoundment of disinfected secondary-2.2 recycled water within 100 feet of any domestic water supply well	Includes any publicly accessible impoundments at fish hatcheries

Table A-6. Restricted Recreational Reuse

State	Reclaimed Water Quality and Treatment Requirements one sample in any 30-day period)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability storage or disposal provisions Emergency storage or	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
			disposal: short-term, 1 day; long-term, 20 days • Sufficient number of qualified personnel					
Colorado	Oxidized and disinfected Total coliform - 2.2/100 ml (7-day median)						500 feet from impoundment to domestic supply well 100 feet from impoundment to any irrigation well	
Hawaii	R-1 water-oxidized, filtered, and disinfected Fecal coliform – 2.2/100 ml (7-day median) - 23/100 ml (not to exceed in more than one sample in any 30-day period) - 200/100 ml (maximum any one sample) Inactivation and/or removal	Daily flow monitoring Continuous turbidity monitoring prior to and after filtration process Continuous measuring and recording of chlorine residual Daily monitoring of fecal coliform Weekly monitoring of	Multiple or standby units required of sufficient capacity to enable effective operation with any one unit out of service Alarm devices required for loss of power, high water levels, failure of pumps or blowers, high head loss on	20 days storage required unless it can be demonstrated that another time period is adequate or that no storage is necessary Storage requirements based on water balance using at least a 30 year record Reject storage			Outer edge of impoundment at least 100 feet from any drinking water supply well	

Table A-6. Restricted Recreational Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
	of 99.999	BOD ₅ and	filters, high	required with a				
	percent of the	suspended	effluent	volume equal				
	plaque-forming	solids	turbidity, loss	to 1 day of				
	units of F-		of coagulant or	flow at the				
	specific		polymer feed,	average daily				
	bacteriophage		and loss of	design flow				
	MS2, or polio		chlorine	Emergency				
	virus		residual	system storage				
	Effluent		Standby power	not required				
	turbidity not to		source	where an				
	exceed 2 NTU		required for	alternate				
	Chemical		treatment plant	effluent				
	pretreatment		and distribution	disposal				
	facilities		pump stations	system has				
	required in all			been approved				
	cases where							
	granular media							
	filtration is							
	used; not							
	required for							
	facilities using							
	membrane							
	filtration							
	Theoretical							
	chlorine							
	contact time of							
	120 minutes							
	and actual							
	modal contact							
	time of 90							
	minutes							
	throughout							
	which the							
	chlorine							
	residual is							
	5 mg/l							
Nevada	At a minimum,							 Pertains to
	secondary							impoundments
	treatment with							where full body
	disinfection							contact with

Table A-6. Restricted Recreational Reuse

State	Reclaimed Water Quality and Treatment Requirements • 30 mg/l BOD ₅ • Fecal coliform - 2.2/100 ml (30 day geometric mean) - 23/100 ml (maximum daily number)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other the treated effluent cannot reasonably be expected
Oregon	Level III biological treatment and disinfection Total coliform 2.2/100 ml (7-day median) 23/100 ml (maximum any sample)	Total coliform sampling 3/week	Standby power with capacity to fully operate all essential treatment processes Redundant treatment facilities and monitoring equipment to meet required levels of treatment Alarm devices to provide warning of loss of power and/or failure of process equipment					
Texas	Type II reclaimed water Reclaimed water on a 30-day average to have a quality of: 30 mg/I BOD₅ with treatment using pond	Sampling and analysis once per week for BOD₅ or CBOD₅ and fecal coliform						

Table A-6. Restricted Recreational Reuse

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
	system • 20 mg/l BOD₅ or 15 mg/l CBOD₅ with treatment other than pond system • Fecal coliform - 200/100 ml (geometric mean) - 800/100 ml (not to exceed in any sample)							
Utah	Type II treated wastewater - secondary treatment with disinfection from the property of the	Weekly composite sampling required for BOD Daily composite sampling required for TSS Daily monitoring of fecal coliform pH monitored continuously or by daily grab samples	Alternative disposal option or diversion to storage required in case quality requirements not met				Impoundments at least 500 feet from any potable water well	
Washington	• Class B -	BOD – 24-hour	Warning	Storage		May be	Unlined improvedments	Nutrient
	oxidized and disinfected	composite samples	alarms independent of	required when no approved		required Monitoring	impoundments - 500 feet	removal to reduce levels
	Total coliform	collected at	normal power	alternative		program will be	between	of phosphorus

Table A-6. Restricted Recreational Reuse

State	Reclaimed Water Quality and Treatment Requirements - 2.2/100 ml (7-day mean) - 23/100 ml (single sample) • 30 mg/l BOD and TSS (monthly mean) • Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) • Minimum chlorine residual of 1 mg/l after a contact time of 30 minutes	Reclaimed Water Monitoring Requirements least weekly TSS – 24-hour composite samples collected at least daily Total coliform and dissolved oxygen grab samples collected at least daily Continuous on-line monitoring of turbidity	Treatment Facility Reliability supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple treatment units or storage or disposal options Qualified personnel available or on call at all times the irrigation system is operating	Storage Requirements disposal system exists Storage volume established by determining storage period required for duration of a 10-year storm, using a minimum of 20 years of climatic data At a minimum, system storage capacity should be the volume equal to three times that portion of the average daily flow for which no alternative reuse or disposal system is	Loading Rates	Groundwater Monitoring based on reclaimed water quality and quantity, site specific soil and hydrogeologic characteristics, and other considerations	Setback Distances perimeter and any potable water supply well • Lined impoundments - 100 feet between perimeter and any potable water supply well	Other and/or nitrogen is recommended to minimize algal growths and maintain acceptable aesthetic conditions
				system is permitted				

Table A-7. Environmental – Wetlands

State Florida	Reclaimed Water Quality and Treatment Requirements Treatment wetland: Secondary treatment with nitrification 20 mg/l CBOD ₅ and TSS (annual average) 2 mg/l total ammonia (monthly average) Receiving wetland: 5 mg/l CBOD ₅ and TSS (annual average) 8 mg/l total ammonia (monthly average) 1 mg/l total nitrogen (annual average) 1 mg/l total phosphorus (annual average) 2 mg/l total ammonia (monthly average)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements Reclaimed water shall be stored in a holding pond The holding pond will have sufficient storage capacity to assure retention of reclaimed water that has not been treated to an acceptable quality for discharge to a treatment or receiving wetland At a minimum, this capacity will be the volume equal to 1 day of flow at the permitted capacity of the treatment plant	Loading Rates Maximum annual average hydraulic loading of 2 in/wk except in hydrologically altered wetlands - maximum of 6 in/wk Treatment wetland - total nitrogen loading rate not to exceed 25 g/m²/yr - total phosphorus loading rate not to exceed 3 g/m²/yr Hydrologically altered wetland - total nitrogen loading rate not to exceed 75 g/m²/yr - total phosphorus loading rate not to exceed 75 g/m²/yr - total phosphorus loading rate not to exceed 75 g/m²/yr - total phosphorus loading rate not to exceed 75 g/m²/yr	Groundwater Monitoring	Setback Distances (1)	Other The discharge of reclaimed water to treatment or receiving wetlands shall minimize channelized flow and maximize sheet flow in the wetland, minimize the loss of dissolution of sediments due to erosion or leaching, and not cause adverse effects on endangered or threatened species Discharge of reclaimed water to wetlands located within Class I surface waters considered reuse for indirect potable purposes
South Dakota	Pretreatment with stabilization ponds			Minimum recommended storage capacity in stabilization	Maximum hydraulic design loading flow through rate on artificial	A minimum of three wells, one upgradient and two downgradient	The entire wetland area to be enclosed with a suitable fence to	Applies to artificial wetland systems Reviewed on a

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-7. Environmental – Wetlands

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements pond system of 150 days • Minimum combined storage capacity of 180 days in stabilization ponds and artificial wetland areas	Loading Rates wetlands of 25,000 gal/acre/day	Groundwater Monitoring of the site, may be required • At a minimum, parameters to be sampled include temperature, pH, conductivity, nitrate, ammonia, fecal coliform, nitrites, chlorides, TDS, sulfate, and GW elevations	Setback Distances (1) provide public safety, exclude livestock, and discourage trespassing	Other site-by-site basis
Washington	Natural and constructed beneficial use wetlands that provide potential human contact, recreational, or educational beneficial uses: • Class A - oxidized, coagulated, filtered, and disinfected • Total coliform - 2.2/100 ml (7-day mean) - 23/100 ml (single sample) Natural and constructed beneficial use	BOD, TSS, Kjeldahl nitrogen, ammonia-nitrogen, total phosphorus, and metals - 24-hour composite samples collected weekly Total coliform - grab samples collected at least daily Continuous flow monitoring	Warning alarms independent of normal power supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple treatment units or storage or disposal options Qualified personnel available or on call at all times	Storage required when no approved alternative disposal system exists Storage volume established by determining storage period required for duration of a 10-year storm, using a minimum of 20 years of climatic data At a minimum, system storage capacity should be the	Not to exceed an additional average annual hydraulic loading rate of 2 cm/day to Category II wetlands and 3 cm/day to Category III and IV wetlands Maximum annual average hydraulic loading rate to constructed beneficial use wetlands is limited to	May be required Groundwater monitoring may be required for a sufficient length of time to determine that the application of reclaimed water will not degrade existing groundwater quality Depends on parameter concentrations in reclaimed water and the	Unlined or unsealed wetland - 500 feet between perimeter and any potable water supply well Lined or sealed wetland - 100 feet between perimeter and any potable water supply well	Discharge to Category I wetlands or to saltwater dominated wetlands is not permitted Reclaimed water intended for beneficial reuse may be discharged for streamflow augmentation provided the reclaimed water meets certain requirements

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-7. Environmental – Wetlands

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	wetlands that		the irrigation	volume equal	5 cm/day	groundwater		
	provide fisheries,		system is	to 3 times that	Hydraulic	quality criteria		
	or potential		operating	portion of the	loading rate			
	human non-			average daily	determined as			
	contact			flow for which	the ratio of the			
	recreational or			no alternative	average			
	educational			reuse or	annual flow			
	beneficial uses:			disposal	rate of			
	Class B -			system is	reclaimed			
	oxidized and			permitted	water to the			
	disinfected				effective			
	Total coliform				wetted area of			
	- 2.2/100 ml				the wetland			
	(7-day mean)							
	- 23/100 ml							
	(single sample)							
	Natural wetlands							
	that provide							
	potential non-							
	contact							
	recreational or							
	educational							
	beneficial uses							
	through restricted							
	access							
	Class C -							
	oxidized and							
	disinfected							
	Total coliform							
	- 23/100 ml							
	(7-day mean)							
	- 240/100 ml							
	(single sample)							
	General							
	compliance							
	requirements:							
	 20 mg/l BOD 							
	and TSS							
	(average							
	annual basis)							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-7. Environmental – Wetlands

	Reclaimed Water Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	3 mg/l total							
	Kjeldahl							
	nitrogen							
	(average							
	annual basis)							
	Total ammonia							
	nitrogen not to							
	exceed							
	Washington							
	chronic standards for							
	freshwater							
	1 mg/l total							
	phosporus							
	(average							
	annual basis)							
	Metals not to							
	exceed							
	Washington							
	surface water							
	quality							
	standards							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

	Reclaimed Water Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
California	Cooling water that	Cooling water	Warning					Whenever a
	creates a mist:	that creates a	alarms					cooling
	Disinfected tertion and additional additional and additional additional and additional additio	mist: Total coliform	Back-up power					system, using
	tertiary recycled water -oxidized,	- sampled at	source Multiple					recycled water in conjunction
	coagulated (not	least once	treatment units					with an air
	required if	daily from the	capable of					conditioning
	membrane	disinfected	treating entire					facility, uses a
	filtration is used	effluent	flow with one					cooling tower
	and/or turbidity	Turbidity	unit not in					or otherwise
	requirements	- continuously	operation or					creates a mist
	are met),	sampled	storage or					that could
	filtered,	following	disposal					come into
	disinfected	filtration	provisions					contact with
	Total coliform	Cooling water	Emergency					employees or
	- 2.2/100 ml	that does not	storage or					members of
	(7-day median) - 23/100 ml (not	create a mist:Total coliform	disposal: short-term,					the public, the
	to exceed in	- sampled at	1 day;					cooling system shall comply
	more than one	least once	long-term,					with the
	sample in any	daily from the	20 days					following:
	30-day period)	disinfected	Sufficient					- a drift
	- 240/100 ml	effluent	number of					eliminator shall
	(maximum any		qualified					be used
	one sample)		personnel					whenever the
	Turbidity							cooling system
	requirements							is in operation
	for wastewater							- a chlorine, or
	that has been							other biocide,
	coagulated and							shall be used
	passed through natural							to treat the cooling system
	undisturbed							recirculating
	soils or a bed of							water to
	filter media							minimize the
	- maximum							growth of
	average of							Legionella and
	2 NTU within a							other micro-
	24-hour period							organisms
	- not to exceed							Reclaimed
	5 NTU more							water can also

Table A-8. Industrial Reuse

	Reclaimed Water Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	than 5 percent	·						be used for
	of the time							industrial boiler
	within a							feed and
	24-hour period							industrial
	- maximum of							process water
	10 NTU at any							
	time							
	 Turbidity 							
	requirements							
	for wastewater							
	passed through							
	membrane							
	- not to exceed							
	0.2 NTU more							
	than 5 percent							
	of the time							
	within a 24-							
	hour period							
	- maximum of							
	0.5 NTU at any							
	time							
	Cooling water that							
	does not create a							
	mist:							
	Disinfected							
	secondary-23 recycled water-							
	oxidized and							
	disinfected							
	Total coliform							
	- 23/100 ml							
	(7-day median)							
	- 240/100 ml							
	(not to exceed							
	in more than							
	one sample in							
	any 30-day							
	period)							
Florida	Once-through	Once-through	Open cooling	Once-through			Once-through	Allows use of
	cooling water and	cooling water,	water tower	cooling water,			cooling water,	reclaimed

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	process water at	wash water or	applications:	wash water or			wash water or	water for
	wastewater	process water:	Class I	process water:			process water:	cooling water,
	treatment plants:	Parameters to	reliability -	System			Setback	wash water, or
	Secondary	be monitored	requires	storage ponds			distances from	process water
	treatment	and sampling	multiple or	not required			the industrial	at industrial
	 20 mg/l CBOD₅ 	frequency to	back-up	Open cooling			process or	facilities
	and TSS	be identified in	treatment units	water tower			activity to the	 Reclaimed
	(annual	wastewater	and a	applications:			site property	water that has
	average)	facility permit	secondary	At a minimum,			line not	not been
	 30 mg/l CBOD₅ 	Minimum	power source	system storage			required	disinfected
	and TSS	schedule for	Minimum	capacity shall			Open cooling	may be used
	(monthly	sampling and	reject storage	be the volume			water tower	for once-
	average)	testing based	capacity equal	equal to 3			applications:	through
	45 mg/l CBOD₅	on system	to 1 day flow at	times the			None required	cooling
	and TSS	capacity	the average	portion of the			if the reclaimed	purposes at
	(weekly	established for	daily design	average daily			water has	industrial
	average)	flow, pH,	flow of the	flow for which			received	facilities if the
	• 60 mg/l CBOD ₅	chlorine	treatment plant	no alternative			secondary	reclaimed
	and TSS	residual,	or the average	reuse or			treatment with filtration and	water has
	(single sample) • pH 6 - 8.5	dissolved	daily permitted flow of the	disposal			high-level	received at least
	Wash water or	oxygen,		system is permitted			disinfection	
	process water:	suspended solids, CBOD ₅ ,	reuse system, whichever is	Water balance			300-foot	secondary treatment. is
	Secondary	nutrients, and	less	required with			setback	conveyed and
	treatment and	fecal coliform	Minimum	volume of			distance	used in closed
	basic	Primary and	system size of	storage based			provided from	systems which
	disinfection	secondary	0.1 mgd (not	on a 10-year			the cooling	are not open to
	• 20 mg/l CBOD ₅	drinking water	required for	recurrence			tower to the	the
	and TSS	standards to	toilet flushing	interval and a			site property	atmosphere,
	(annual	be monitored	and fire	minimum of 20			lines if	and is returned
	average)	by facilities >	protection	years of			reclaimed	to the domestic
	• 30 mg/l CBOD ₅	100,000 gpd	uses)	climatic data			water has	wastewater
	and TSS	Open cooling	Staffing -	Not required if			received	treatment
	(monthly	water tower	24 hrs/day,	alternative			secondary	facility
	average)	applications:	7 days/wk or	system is			treatment and	Reclaimed
	45 mg/l CBOD₅	Parameters to	6 hrs/day,	incorporated			basic	water that has
	and TSS	be monitored	7 days/wk with	into the system			disinfection	received
	(weekly	and sampling	diversion of	design to				secondary
	average)	frequency to	reclaimed	ensure				treatment and
	• 60 mg/l CBOD ₅	be identified in	water to reuse	continuous				basic
	and TSS	wastewater	system only	facility				disinfection

Table A-8. Industrial Reuse

	Reclaimed Water							
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	(single sample)	facility permit	during periods	operation				can be used in
	Chlorine	Minimum	of operator	oporation				open cooling
	residual of	schedule for	presence					towers if a
	0.5 mg/l	sampling and	presence					300-foot
	maintained	testing based						setback
	after at least 15	on system						distance is
	minutes contact	capacity						provided to the
	time at peak	established for						property line,
	flow	flow, pH,						the cooling
	Fecal coliform							
	- 200/100 ml	chlorine residual.						tower is
		,						designed and
	(annual	dissolved						operated to
	average)	oxygen,						minimize
	- 200/100 ml	suspended						aerosol drift to
	(monthly	solids, CBOD ₅ ,						areas beyond
	geometric	nutrients, and						the site
	mean)	fecal coliform						property line
	- 400/100 ml	Continuous						that are
	(not to exceed	on-line						accessible to
	in more than 10	monitoring of						the public, and
	percent of	turbidity prior						biological
	samples in a	to disinfection						growth is
	30-day period)	Continuous						controlled
	- 800/100 ml	on-line						
	(single sample)	monitoring of						
	• pH 6 - 8.5	total chlorine						
	 Limitations to 	residual or						
	be met after	residual						
	disinfection	concentrations						
	Open cooling	of other						
	water tower	disinfectants						
	applications:	 Monitoring for 						
	 Secondary 	Giardia and						
	treatment with	Cryptosporidium						
	filtration and	 sampling one 						
	high-level	time during						
	disinfection	each 2 year						
	Chemical feed	period						
	facilities to be	- samples to						
	provided	be taken						
	 20 mg/l CBOD₅ 	immediately						

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

Ctata	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	Othor
State	Requirements (annual average) 5 mg/l TSS (single sample) to be met after filtration and prior to disinfection Total chlorine residual of at least 1 mg/l after a minimum acceptable contact time of 15 minutes at peak hourly flow Fecal coliform - over 30-day period, 75 percent of samples below detection limits - 25/100 ml (single sample) pH 6 - 8.5 Limitations to be met after disinfection	Requirements following disinfection process • Primary and secondary drinking water standards to be monitored by facilities ≥ 100,000 gpd	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Hawaii	Cooling water that emits vapor or droplets or an industrial process with exposure to workers: R-1 water-oxidized, filtered, and disinfected	Daily flow monitoring Continuous turbidity monitoring prior to and after filtration process Continuous measuring and	Multiple or standby units required of sufficient capacity to enable effective operation with any one unit out of service	20 days storage required unless it can be demonstrated that another time period is adequate or that no storage				Can be used for industrial cooling in a system that does not have a cooling tower, evaporative condenser, or other feature

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

	Reclaimed Water	1						
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	Fecal coliform	recording of	Alarm devices	is necessary				that emits
	- 2.2/100 ml	chlorine	required for	Storage				vapor or
	(7-day median)	residual	loss of power,	requirements				droplets to the
	- 23/100 ml (not	Daily	high water	based on				open
	to exceed in	monitoring of	levels, failure	water balance				atmosphere or
	more than one	fecal coliform	of pumps or	using at least a				to air to be
	sample in any	Weekly	blowers, high	30 year record				passed into a
	30-day period)	monitoring of	head loss on	Reject storage				building or
	- 200/100 ml	BOD₅ and	filters, high	required with a				other
	(maximum any	suspended	effluent	volume equal				enclosure
	one sample)	solids	turbidity, loss	to 1 day of flow				occupied by a
	 Inactivation 		of coagulant or	at the average				person
	and/or removal		polymer feed,	daily design				 Can be used
	of 99.999		and loss of	flow				as supply for
	percent of the		chlorine	 Emergency 				addition to a
	plaque-forming		residual	system storage				cooling system
	units of F-		 Standby power 	not required				or air
	specific		source	where an				conditioning
	bacteriophage		required for	alternate				system with a
	MS2, or polio		treatment plant	effluent				cooling tower,
	virus		and	disposal				evaporative
	Effluent		distribution	system has				condenser, or
	turbidity not to		pump stations	been approved				other feature
	exceed 2 NTU							that emits
	Chemical							vapor or
	pretreatment							droplets to the
	facilities							open
	required in all							atmosphere or
	cases where							to air to be
	granular media filtration is							passed into a
	used; not							building or
	required for							other enclosure
	facilities using							occupied by a
	membrane							person, when
	filtration							all of the
	Theoretical							following
	chlorine contact							occurs: a high
	time of 120							efficiency drift
	minutes and							reducer is
	actual modal							used and the
	actual Illoual		1			1		useu anu ine

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

	Reclaimed Water	1				1		
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
Otate	contact time of	rtoquirements	1 dointy 1 toliability	requirements	rates	Worldoning	Distariocs	system is
	90 minutes							maintained to
	throughout							avoid greater
	which the							rate of
	chlorine							generation of
	residual is							drift than that
	5 mg/l							which a high
	Cooling water that							efficiency drift
	does not emit							reducer is
	vapor or droplets,							associated; a
	an industrial							continuous
	process without							biocide
	exposure to							residual,
	workers or							sufficient to
	industrial boiler							prevent
	feed:							bacterial
	R-2 water-							population
	oxidized and							from
	disinfected							exceeding
	Fecal coliform							10,000/ml is
	- 23/100 ml							maintained in
	(7-day median)							circulating
	- 200/100 ml							water; and the
	(not to exceed							system is
	in more than							inspected by
	one sample in							an operator
	any 30-day							capable of
	period) • Theoretical							determining compliance at
	chlorine contact							least once per
	time of 15							day
	minutes and							uay
	actual modal							
	contact time of							
	10 minutes							
	throughout							
	which the							
	chlorine							
	residual is							
	0.5 mg/l							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

State New Jersey	Reclaimed Water Quality and Treatment Requirements Requires a case-by-case review Fecal coliform - 200/100 ml (monthly average, geometric mean) - 400/100 ml (maximum any one sample Minimum chlorine residual - 1.0 mg/l after 15 minute contact at peak hourly flow TSS requirements applies to the existing treatment requirements	Reclaimed Water Monitoring Requirements Submission of Standard Operations Procedure that ensures proper disinfection to the required level of 1.0 mg/l Annual usage report	Treatment Facility Reliability	Storage Requirements Not required when another permitted reuse system or effluent disposal system is incorporated into the system design If system storage ponds are used, they do not have to be lined Reject storage ponds shall be lined or sealed to prevent measurable seepage Existing or proposed ponds (such as golf course	Loading Rates	Groundwater Monitoring	Setback Distances ⁽¹⁾	Other • Worker contact with reclaimed water shall be minimized • Windblown spray shall not reach areas accessible to the public • Secondary treatment, for the purpose of the manual, refers to the existing treatment requirements in the NJPDES permit, not including the additional reclaimed water for beneficial reuse
	- 1.0 mg/l after 15 minute contact at peak hourly flow TSS requirements applies to the existing			Reject storage ponds shall be lined or sealed to prevent measurable seepage Existing or proposed ponds (such as golf course ponds) are appropriate for storage of reuse water if the ability of the ponds to				treatment requirements in the NJPDES permit, not including the additional reclaimed water for
North Carolina	Tertiary quality	Continuous	All essential	function as stormwater management systems is not impaired				Includes
	effluent (filtered or equivalent) • TSS	on-line monitoring and recording for	treatment units to be provided in duplicate	using a mass water balance based upon a				reclaimed water used for process water

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

	Reclaimed Water			1				
	Quality and	Reclaimed Water						
	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances (1)	Other
	- 5 mg/l	turbidity or	Five-day side	recent 25-year				and cooling
	(monthly	particle count	stream	period using				water
	average)	and flow prior	detention pond	monthly				purposes
	- 10 mg/l (daily	to discharge	required for	average				' '
	maximum)		effluent	precipitation				
	Fecal coliform		exceeding	data, potential				
	- 14/100 ml		turbidity or	evapotrans-				
	(monthly		fecal coliform	piration,data,				
	geometric		limits	and soil				
	mean)		 Automatically 	drainage data				
	- 25/100 ml		activated	 No storage 				
	(daily		standby power	facilities				
	maximum)		source to be	required if it				
	• BOD₅		provided	can be				
	- 10 mg/l		Certified	demonstrated				
	(monthly		operator on	that other				
	average)		call 24 hrs/day	permitted				
	- 15 mg/l (daily		with a grade	disposal				
	maximum)		level	options are				
	• NH ₃		equivalent to	available				
	- 4 mg/l		or greater than					
	(monthly		the facility					
	average)		classification					
	- 6 mg/l (daily							
	maximum)							
	Turbidity not to exceed 10 NTU							
Oregon	at any time • Level II is	Total coliform	Standby power					Use of
Oregon	minimum	sampling	with capacity					reclaimed
	treatment for	- Once a week	to fully operate					water in
	industrial or	- Office a week	all essential					evaporative
	commercial		treatment					cooling
	uses		processes					systems will be
	- biological		Redundant					approved only
	treatment and		treatment					if the user can
	disinfection		facilities and					demonstrate
	Total coliform		monitoring					that aerosols
	- 240/100 ml		equipment to					will not present
	(2 consecutive		meet required					a hazard to
	samples)		levels of					public health

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

State	Reclaimed Water Quality and Treatment Requirements - 23/100 ml (7-day median)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability treatment • Alarm devices to provide warning of loss of power and/or failure of process equipment	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
Texas	Cooling tower makeup water • Type II reclaimed water Reclaimed water on a 3- day average to have a quality of: • 30 mg/l BOD₅ with treatment using pond system • 20 mg/l BOD₅ or 15 mg/l CBOD₅ with treatment other than pond system • Fecal coliform - 200/100 ml (geometric mean) - 800/100 ml (not to exceed in any sample)	Sampling and analysis once per week for BOD₅ or CBOD₅ and fecal coliform	очирители					Use for cooling towers which produce significant aerosols adjacent to public access areas may have special requirements

Table A-8. Industrial Reuse

State Utah	Reclaimed Water Quality and Treatment Requirements Cooling water: Type II treated wastewater - secondary treatment with disinfection 55 mg/l BOD (monthly average) TSS 25 mg/l (monthly average) 35 mg/l (weekly average) Fecal coliform 200/100 ml (weekly median) 800/100 ml (not to exceed in any sample) pH 6 - 9	Reclaimed Water Monitoring Requirements • Weekly composite sampling required for BOD • Daily composite sampling required for TSS • Daily monitoring of fecal coliform • pH monitored continuously or by daily grab samples	Treatment Facility Reliability • Alternative disposal option or diversion to storage required in case quality requirements not met	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other • Use for cooling towers which produce aerosols in populated areas may have special restrictions imposed
Washington	Industrial boiler feed, industrial cooling water where aerosols or other mists are not created, and industrial process water with no exposure to workers: Class C - oxidized and disinfected Total coliform - 23/100 ml (7-day mean)	BOD – 24-hour composite samples collected at least weekly TSS – 24-hour composite samples collected at least daily Total coliform and dissolved oxygen - grab samples collected at	Warning alarms independent of normal power supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple treatment units or storage or	Storage required when no approved alternative disposal system exists Storage volume established by determining storage period required for duration of a 10-year storm, using a minimum of 20				

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-8. Industrial Reuse

- 240/100 ml (single sample) Industrial cooling water where aerosols or other mists are created and industrial process water with exposure to workers: • Class A - oxidized, coagulated, filtered, and disinfected • Total coliform - 2.2/100 ml (7-day mean) - 23/100 ml (single sample) General compliance requirements:	State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances (1)	Other
and TSS (monthly mean) Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) Minimum chlorine residual of 1 mg/l after a contact time of	State	- 240/100 ml (single sample) Industrial cooling water where aerosols or other mists are created and industrial process water with exposure to workers: • Class A - oxidized, coagulated, filtered, and disinfected • Total coliform - 2.2/100 ml (7-day mean) - 23/100 ml (single sample) General compliance requirements: • 30 mg/l BOD and TSS (monthly mean) • Turbidity - 2 NTU (monthly) - 5 NTU (not to exceed at any time) • Minimum chlorine residual of 1 mg/l after a	least daily Continuous on-line monitoring of	disposal options • Qualified personnel available or on call at all times the irrigation system is	years of climatic data At a minimum, system storage capacity should be equal to 3 times that portion of the average daily flow for which no alternative reuse or disposal system is	ivales	Wolffieding	Distances	Outei

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
California	Determined on a case-by-case basis Based on all relevant aspects of each project, including the following factors: treatment provided; effluent quality and quantity; spreading area operations; soil characteristics; hydrogeology; residence time and distance to withdrawal							
Florida	Use of rapid-rate land application systems: Secondary treatment and basic disinfection Fecal coliform - 200/100 ml (annual average) - 200/100 ml (monthly geometric mean) - 400/100 ml (not to exceed	Continuous on-line monitoring for turbidity before application of the disinfectant Continuous monitoring for chlorine residual or for residual concentrations of other disinfectants Treatment facilities designed to	Class I reliability - requires multiple or backup treatment units and a secondary power source For treatment facilities required to provide full treatment and disinfection - minimum reject storage	System storage not required If system storage is provided, at a minimum, system storage capacity shall be the volume equal to three times the portion of the average daily flow for which no alternative reuse or	Reasonable assurances must be provided that the hydraulic loading rates used in the design must enable the system to comply with the requirements while meeting applicable groundwater quality	Required 1 upgradient well located as close as possible to the site without being affected by the site's discharge (background well) 1 well at the edge of the zone of discharge down-gradient of the site	Zones of discharge not to extend closer than 500 feet to a potable water supply well 1,000 foot setback distance from injection well used for salinity barrier control to potable water supply wells 500 feet to	Rapid-rate application systems that result in the collection and discharge of more than 50 percent of the applied reclaimed water will be considered effluent disposal systems Involves the planned use of

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements in more than	Reclaimed Water Monitoring Requirements meet the full	Treatment Facility Reliability capacity equal	Storage Requirements disposal	Loading Rates standards	Groundwater Monitoring (compliance	Setback Distances potable water	Other reclaimed
Jiaie	in more than 10% of samples in a 30 day period) - 800/100 ml (single sample) • 10 mg/l TSS (single sample) prior to discharge to the application/ distribution system for absorption field systems • Nitrate - 12 mg/l as nitrogen Use of rapid-rate land application systems for projects considered reuse for groundwater recharge under 62-610.525: • Secondary treatment with filtration and high-level disinfection • Chemical feed facilities to be provided	meet the full treatment and disinfection requirements to sample for TOC and total organic halogen daily, seven days per week Total coliforms and TSS analyzed daily if treatment facility is required to meet bacteriological requirements of the drinking water standards Parameters listed as primary drinking water standards that are imposed as reclaimed water limits to be analyzed monthly Parameters listed as	capacity equal to three day's flow at the average daily permitted flow of the treatment plant or the average daily permitted flow of the reuse system, whichever is less If full treatment and disinfection is not required, the capacity requirement for reject storage shall be reduced to one day's flow Reject storage will not be required if another permitted reuse system or effluent disposal system is capable of discharging	- '		(compliance well) 1 well downgradient from the site and within the zone of discharge (intermediate well) 1 well located adjacent to unlined storage ponds or lakes Other wells may be required depending on site-specific criteria Quarterly monitoring required for water level, nitrate, total dissolved solids, arsenic, cadmium, chloride, chromium, lead, fecal coliform, pH and sulfate	potable water supply wells that are existing or have been approved; Class I surface waters; or Class II surface waters • Setback distance to Class I and Class II surface waters reduced to 100 feet if high-level disinfection is provided • 100 feet to buildings not part of the treatment facility, utilities system or municipal operations • 100 feet to site property line • Some setback distances may be reduced if certain	reclaimed water to augment Class F-1, G-1, or G-II groundwaters identified for potable water use and defined as groundwater recharge in regulations • Types of groundwater recharge systems include injection of reclaimed water into Class F-1, G-1, or G-II groundwaters, specific rapid- rate land application systems, use of reclaimed water to create barriers to the landward or upward migration of
	5 mg/l TSS (single sample) to be achieved prior to	secondary drinking water standards that are imposed	the reject water in accordance with			Monitoring may be required for additional	treatment requirements are met and assurances	salt water within Class F-1, G-1, or G-II

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
	disinfection Total nitrogen 10 mg/l (maximum annual average) Primary (except asbestos and bacteriological parameters) and secondary drinking water standards must be met pH to fall within range established in secondary drinking water standards Groundwater recharge by injection of Class G-1 and F-1 groundwaters and Class G-II groundwaters containing 3000 mg/l or less of TDS: Secondary treatment with filtration and high-level disinfection Chemical feed facilities to be provided	as reclaimed water limits to be analyzed quarterly pH - daily Except for total coliforms and pH, 24-hour composite samples to be used for parameters listed as primary or secondary drinking water standards Unregulated organic contaminants to be sampled annually for some types of projects Monitoring for Giardia and Cryptosporidium required quarterly or one time during each two-year period depending on type of project Parameters to be monitored and sampling	requirements Minimum system size of 0.1 MGD Staffing - 24 hrs/day, 7 days/wk for systems required to provide full treatment and disinfection - reduced staffing requirement to 6 hrs/day, 7 days/wk may be approved for systems not required to provide full treatment with diversion of reclaimed water to reuse system only during periods of operator presence and other provisions for increased reliability			parameters based on site specific conditions and groundwater quality	are provided	groundwaters and discharge to surface waters which are directly connected to Class F-1, G-I or G-II groundwaters Public notification and public hearing requirements Pilot testing is required for all projects that are required to provide full treatment and disinfection

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
State	5 mg/l TSS (single sample) to be achieved prior to disinfection Total nitrogen - 10 mg/l (maximum annual average) Primary (except asbestos) and secondary drinking water standards must be met pH to fall within range	frequency to be identified in wastewater facility permit Minimum schedule for sampling and testing based on system capacity	Pacifity Heliability	Requirements	nates	Monitoring	Distances	Other
	established in secondary drinking water standards TOC - 3 mg/l (monthly average) - 5 mg/l (single sample) Total organic halogen (TOX) - 0.2 mg/l (monthly average)							
	- 0.3 mg/l (single sample) • Alternative TOC and TOX limitations may							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
	be approved if certain conditions are met Groundwater recharge by injection of Class G-II groundwaters containing greater than 3000 mg/l of TDS: Same treatment and water quality requirements as above except TOC, TOX and secondary drinking water requirements do not apply Limitations to be met before injection to groundwater							
Hawaii	Determined on a case-by-case basis Recycled water used for groundwater recharge by surface or subsurface application shall be at all	Determined on a case-by-case basis	Multiple or standby units required of sufficient capacity to enable effective operation with any one unit out of service Alarm devices	20 days storage required unless it can be demonstrated that another time period is adequate or that no storage is necessary		Required Groundwater monitoring system may consist of a number of lysimeters and/or monitoring wells depending on		Department of Health evaluation of proposed groundwater recharge projects and expansion of existing projects made on an

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
State				-				Other individual case basis where the use of reclaimed water involves a potential risk to public health Evaluation based on all relevant aspects of each project including treatment provided, effluent quality and quantity, effluent or application spreading area operation, soil characteristics, hydrogeology, residence time, and distance to withdrawal A public hearing or a public referendum is required for the DOH to review a request to augment a
	tion of the vegetative cover, will be designated as a					be necessary to address concerns of public health or		potable water supply by recharging the potable water

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements recharge project	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring environmental protection as related to variable characteristics of the subsurface or of the operations of the project	Setback Distances	Other supply aquifer with recycled water
Massachusetts	Secondary Filtration (possibly) Disinfection pH 6 - 9 BOD - less than 10 mg/l or 30 mg/l Turbidity - less than 2 NTU or 5 NTU Fecal coliform - median of no detectable colonies/100 ml over continuous, running 7 day sampling periods, not to exceed 14/100 ml or 200/100 ml TSS - 5 mg/l or 10 mg/l Total nitrogen - less than 10 mg/l	pH - weekly or daily BOD - weekly Turbidity - continuous Fecal coliform - daily or twice per week Metals - quarterly TSS - weekly or twice per week Nitrogen - once or twice per week MS-2 phage - quarterly Total culturable viruses - quarterly Variable testing requirements UV intensity or chlorine residual - daily	EPA Class I Reliability standards may be required Two independent and separate sources of power Unit redundancy Additional storage	Immediate, permitted discharge alternatives are required for emergency situations		A groundwater monitoring plan is required and must accomplish the following goals: • Evaluates upgradient (background) groundwater quality • Evaluates the performance of land use components that are considered part of the treatment process • Evaluates the overall impact of the project on local groundwater quality • Acts as an early warning	No wastewater discharges will be permitted in the Zone I of any public water supply well defined as the area encompassing a maximum 400-foot radius around the wellhead (assuming a greater than 100,000 gpd withdrawal rate) Discharging to Zone IIs, defined as the entire extent of the aquifer deposits which could fall within and upgradient from the production	Refers to discharges into aquifer recharge areas as defined by Zone II boundaries of community water systems and groundwater discharges that will recharge reservoirs or tributaries to reservoirs New treatment plants located in approved Zone IIs with less than a two year groundwater travel time to the public water supply well must treat to the more

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements Class I Groundwater Permit Standards (SDWA Drinking Water Standards)	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring system between the discharge and sensitive receptors	Setback Distances well's capture zone based on the predicted drawdown after 180-day drought conditions at the approved pumping rate, will be permitted in circumstances where it is necessary to replenish streamflow, enhance the productivity and capacity of an aquifer and/or improve upon or mitigate poor existing environmental	Other rigorous of the two standards described Existing treatment plants that can demonstrate four or five feet of separation and where the well has not shown any evidence of water quality degradation may maintain the lesser standard
Washington	Nonpotable	Point of	Warning	Storage		Will be	conditions • Reclaimed	Defined as
	aquifer recharge:	compliance is	alarms	required when		required and	water	direct recharge
	Class A -	the point of	independent of	no approved		based on	withdrawn for	to nonpotable
	oxidized,	direct recharge	normal power	alternative		reclaimed	nonpotable	or potable
	coagulated, filtered and	of reclaimed water into the	supplyBack-up power	disposal system exists		water quality and quantity,	purposes can be withdrawn	groundwater aquifers
	disinfected	underground	Back-up power source	Storage		site-specific	at any distance	aquirers Reclaimed
	Total coliform	BOD – 24-	Emergency	volume		site-specific	from the point	water
	- 2.2/100 ml	hour	storage:	established by		hydrogeologic	of direct	water withdrawn for
	(7-day median)	composite	short-term,	determining		characteristics	recharge	nonpotable
	- 23/100 ml	samples	1 day;	storage period		and other	The minimum	purposes can
	(single sample)	collected at	long-term,	required for		considerations	horizontal	be withdrawn

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	Other
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	
	• 5 mg/l BOD	least daily	20 days	duration of a		Nonpotable	separation	at any time
	and TSS	• TSS – 24-hour	Multiple	10-year storm,		aquifer recharge:	distance	after direct
	(7-day mean)	composite	treatment units	using a		Monitoring	between the	recharge
	Turbidity	samples	or storage or	minimum of 20		wells shall be	point of direct	Reclaimed
	- 2 NTU	collected at	disposal	years of		established on	recharge and	water shall be
	(monthly mean)	least daily	options	climatic data		a case-by-case	withdrawal as	retained
	- 5 NTU	Total coliform -	Qualified	At a minimum,		basis	a source of	underground
	(single sample)	grab samples	personnel	system storage		Constituents to	drinking water	for a minimum
	Minimum	collected at	available or on	capacity		be sampled	supply shall be	of 12 months
	chlorine	least daily and	call at all times	should be the		shall be	2,000 feet	prior to being
	residual of	at a time when	the system is	volume equal		determined on		withdrawn as a
	1 mg/l after a	wastewater	operating	to 3 times that		a case-by-case		source of
	contact time of	characteristics		portion of the		basis		drinking water
	30 minutes	are most		average daily		Samples from		supply
	based on peak	demanding on		flow for which		monitoring		Project
	hourly flow	the treatment		no alternative		wells and their		evaluation
	A chlorine	facilities and		reuse or		sampling		based on all
	residual of at	disinfection		disposal		frequency shall		relevant
	least 0.5 mg/l to	procedures		system is		be determined		aspects of
	be maintained	Continuous		permitted		on a case-by-		each project,
	in the reclaimed	on-line				case basis		including
	water during	monitoring of				Potable aquifer		treatment and
	conveyance to	turbidity and				recharge:		treatment
	the point of	chlorine				 Monitoring 		reliability
	recharge	residual				wells, at a		provided,
	Potable aquifer	Additional				minimum, shall		reclaimed
	recharge:	monitoring				be located at		water quality
	 Oxidized, 	requirements for				points 500 feet		and quantity,
	coagulated,	potable aquifer				and 1,000 feet		use or
	filtered,	recharge:				(plus or minus		potential use of
	reverse-	TOC - 24-hour				10%) along the		groundwater,
	osmosis treated	composite				groundwater		operation and
	and disinfected	samples				flow path from		management
	 Total coliform 	collected at				the point of		of the recharge
	- 1/100 ml	least daily				recharge to the		facilities, soil
	(7-day median)	Primary				nearest point		characteristics,
	- 5/100 ml	contaminants				of withdrawal		hydrogeology,
	(single sample)	(except total				of groundwater		residence time

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
	5 mg/l BOD and TSS (7 day mean) Turbidity - 0.1 NTU (monthly mean) - 0.5 NTU (maximum) Total nitrogen - 10 mg/l as N (annual mean) TOC - 1.0 mg/l (monthly mean) Water quality criteria for primary contaminants (except nitrate), secondary contaminants, radionuclides and carcinogens listed in Table 1 in chapter 173-200 WAC and any other maximum contaminant levels pursuant to chapter 246-290 WAC must be met Minimum chlorine residual of 1 mg/l after a	coliform organisms), secondary contaminants, radionuclides, and carcinogens - 24-hour composite samples collected at least quarterly • Total nitrogen - grab or 24-hour composite samples collected at least weekly				used as a source of drinking water supply Groundwater shall be sampled for TOC and primary contaminants, radionuclides, and carcinogens listed in Table 1 in chapter 173-200 WAC Samples from monitoring wells shall be collected at least quarterly		of the reclaimed water in the underground prior to withdrawal and distance from the recharge area to nearest point of withdrawal A pilot plant study shall be performed prior to implementation of direct recharge into a potable groundwater aquifer

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-9. Groundwater Recharge

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
	contact time of 30 minutes based on peak hourly flow • A chlorine residual of at least 0.5 mg/l to be maintained in the reclaimed water during conveyance to the point of recharge							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-10. Indirect Potable Reuse

	Reclaimed Water Quality and Treatment	Reclaimed Water Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
California	Determined on a case-by-case basis Based on all relevant aspects of each project, including the following factors: treatment provided; effluent quality and quantity; spreading area operations; soil characteristics; hydrogeology; residence time and distance to withdrawal	•	•		•	•	•	
Florida	Discharge to Class I surface waters and to water contiguous to or tributary to Class I waters (less than 4 hours travel time): • Secondary treatment with filtration and high-level disinfection • Chemical feed facilities to be provided • 5 mg/l TSS	Continuous on-line monitoring for turbidity before application of the disinfectant Continuous monitoring for chlorine residual concentrations of other disinfectants Treatment facilities designed to	Class I reliability - requires multiple or backup treatment units and a secondary power source For treatment facilities required to provide full treatment and disinfection - minimum reject storage	System storage not required If system storage is provided, at a minimum, system storage capacity shall be the volume equal to 3 times the portion of the average daily flow for which no alternative reuse or	Reasonable assurances must be provided that the hydraulic loading rates used in the design must enable the system to comply with the requirements while meeting applicable surface water and	Required 1 upgradient well located as close as possible to the site without being affected by the site's discharge (background well) 1 well at the edge of the zone of discharge down-gradient of the site	Outfalls for surface water discharges not to be located within 500 feet of existing or approved potable water intakes within Class I surface waters Zones of discharge not to extend closer than 500 feet to a potable water	Involves the planned use of reclaimed water to augment Class F-1, G-1, or G-II groundwaters identified for potable water use and defined as groundwater recharge in regulations Types of groundwater

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-10. Indirect Potable Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
State	(single sample) to be achieved prior to disinfection Total nitrogen 10 mg/l (maximum annual average) Primary (except asbestos) and secondary drinking water standards must be met pH to fall within range established in secondary drinking water standards TOC 3 mg/l (monthly average) 5 mg/l (single sample) Use of rapid-rate land application systems for projects considered reuse for groundwater recharge under 62-610.525:	meet the full treatment and disinfection requirements to sample for TOC and total organic halogen daily, 7 days per week Total coliforms and TSS analyzed daily if treatment facility is required to meet bacteriological requirements of the drinking water standards Parameters listed as primary drinking water standards that are imposed as reclaimed water limits to be analyzed monthly Parameters listed as secondary	capacity equal to 3 day's flow at the average daily permitted flow of the treatment plant or the average daily permitted flow of the reuse system, whichever is less If full treatment and disinfection is not required, the capacity requirement for reject storage shall be reduced to one day's flow Reject storage will not be required if another permitted reuse system or effluent disposal system is capable of discharging the reject water in	Requirements disposal system is permitted Water balance required with volume of storage based on a 10-year recurrence interval and a minimum of 20 years of climatic data Not required if alternative system is incorporated into the system design to ensure continuous facility operation	groundwater quality standards • A groundwater mounding analysis is to be included in the engineering report for projects involving discharges to groundwater and should provide reasonable assurances that the proposed project will function as intended and will not result in excessive mounding of groundwaters, increases in surface water elevations, property damage or interference with reasonable	Monitoring (compliance well) 1 well downgradient from the site and within the zone of discharge (intermediate well) 1 well located adjacent to unlined storage ponds or lakes Other wells may be required depending on site-specific criteria Quarterly monitoring required for water level, nitrate, total dissolved solids, arsenic, cadmium, chloride, chromium, lead, fecal coliform, pH, and sulfate Monitoring	supply well 1,000 foot setback distance from injection well used for salinity barrier control to potable water supply wells Injection facilities: 500 feet to potable water supply wells that are existing or have been approved; Class I surface waters; or Class II surface waters Setback distance to Class I and Class II surface waters reduced to 100 feet if high-level disinfection is provided 100 feet to buildings not	recharge systems include injection of reclaimed water into Class F-1, G-1, or G-II groundwaters, specific rapid- rate land application systems, use of reclaimed water to create barriers to the landward or upward migration of salt water within Class F-1, G-1, or G-II groundwaters and discharge to surface waters which are directly connected to Class F-1, G-I or G-II groundwaters Indirect potable reuse Involves the
	Secondary treatment with filtration and	drinking water standards that are imposed	accordance with requirements		use of property within the affected area	may be required for additional	part of the treatment facility, utilities	planned use of reclaimed water to

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Table A-10. Indirect Potable Reuse

Treatment Requirements Monitoring Requirements Requirements Facility Reliability Requirements Requirements Requirements Rates Rates Rates Rates Ronitoring Setback Distances	Other augment surface water resources which are used or will be used
high-level disinfection water limits to be analyzed facilities to be provided (single sample) to be achieved prior to disinfection be achieved prior to Total nitrogen - 10 mg/l (maximum) high-level water limits to water limits to be analyzed quarterly system size of 0.1 mgd system sequence of 0.1 mgd system sequence of 0.1 mgd system or municipal operations conditions and groundwater quality system or municipal operations conditions and groundwater quality system or municipal operations on the system or municipal operations or advanced in the system or municipal operations or advanced in property line or system or municipal operations or advanced in the system or advanced	surface water resources which are used or will be used
drinking water standards must be met projects range established in secondary drinking water standards groundwater to be sampled diversion of diversion of reclaimed water to reuse system only during periods of operator presence and other diversion of diversion of secondary diversion of diversion of diversion of diversion of diversion of diversion of reclaimed water to reuse system only during periods of operator presence and other of oversion of of operator of operator of operator presence and other of oversion of of operator	for public water supplies and includes discharges to Class I surface waters and discharges to other surface waters which are directly or indirectly connected to Class I surface waters • Public notification and public hearing requirements in place for projects involving surface water discharges and underground injection • Pilot testing is required for all projects that are required to provide full treatment and disinfection

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Table A-10. Indirect Potable Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
Siale	TDS:	Requirements	racility neliability	nequirements	naies	ivioriitoririg	Distances	Other
	• Same	be identified in wastewater						
	treatment and							
	water quality	facility permit Minimum						
	requirements	schedule for						
	as discharge to	sampling and						
	Class I surface	testing based						
	waters except	on system						
	additional	capacity						
	requirement for	σαρασιιή						
	total organic							
	halogen must							
	be met							
	Total organic							
	halogen (TOX)							
	- 0.2 mg/l							
	(monthly							
	average)							
	- 0.3 mg/l							
	(single sample							
	Alternative							
	TOC and TOX							
	limitations may							
	be approved if							
	certain							
	conditions are							
	met							
	Groundwater							
	recharge by injection of Class							
	G-II groundwaters							
	containing greater							
	than 3000 mg/l of							
	TDS:							
	• Same							
	treatment and							
	water quality							
	requirements							

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-10. Indirect Potable Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
	as discharge to Class I surface waters except TOC and secondary drinking water requirements do not apply Limitations to be met before injection to groundwater or discharge to surface waters							
Hawaii	Determined on a case-by-case basis Reclaimed water used for groundwater recharge by surface or subsurface application shall be at all times of a quality that fully protects public health Projects that are over an aquifer classified as potable, where the application rates exceed the	Determined on a case-by-case basis	Multiple or standby units required of sufficient capacity to enable effective operation with any one unit out of service Alarm devices required for loss of power, high water levels, failure of pumps or blowers, high head loss on filters, high effluent turbidity, loss of coagulant or polymer feed,	20 days storage required unless it can be demonstrated that another time period is adequate or that no storage is necessary Storage requirements based on water balance using at least a 30-year record Reject storage required with a volume equal to 1 day of flow at the average daily design		Required Groundwater monitoring system may consist of a number of lysimeters and/or monitoring wells depending on site size, site characteristics, location, method of discharge, and other appropriate considerations One well upgradient and two wells downgradient		Department of Health evaluation of proposed groundwater recharge projects and expansion of existing projects made on an individual case basis where the use of recycled water involves a potential risk to public health Evaluation based on all relevant aspects of each project including

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Table A-10. Indirect Potable Reuse

	Reclaimed Water	5 1 1 11/4 1						
	Quality and	Reclaimed Water	T	01	L a a Para	0	0 - 11 1	
State	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback Distances	Other
State	Requirements	Requirements	Facility Reliability chlorine	Requirements	Rates	Monitoring 500 acres or	Distances	treatment
	evapotranspira- tion of the		residual	Emergency system storage		more		provided,
	vegetative		Standby power	not required		One well		effluent quality
	cover, will be		source	where an		within the		and quantity,
	designated as a		required for	alternate		within the wetted field		effluent or
	recharge		treatment plant	effluent		area for each		application
	, ,		and	disposal		project whose		'''
	project		distribution	system has		surface area is		spreading area operation, soil
			pump stations	been approved		greater than or		characteristics.
			pump stations	been approved		equal to 1,500		hydrogeology,
						acres		residence time,
						One lysimeter		and distance to
						per 200 acres		withdrawal
						One lysimeter		A public
						for project sites		hearing or a
						that have		public
						greater than 40		referendum is
						but less than		required for the
						200 acres		DOH to review
						Additional		a request to
						lysimeters may		augment a
						be necessary		potable water
						to address		supply by
						concerns of		recharging the
						public health or		potable water
						environmental		supply aquifer
						protection as		with recycled
						related to		water
						variable		
						characteristics		
						of the		
						subsurface or		
						of the		
						operations of		
						the project		
Massachusetts	Secondary	pH - weekly or	EPA Class I	Immediate,		A groundwater	 No wastewater 	 Refers to
	Filtration	daily	Reliability	permitted		monitoring plan is	discharges will	discharges into
	(possibly)	BOD - weekly	standards may	discharge		required and	be permitted in	aquifer

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Table A-10. Indirect Potable Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
	Disinfection PH 6 - 9 BOD - less than 10 mg/l or 30 mg/l Turbidity - less than 2 NTU or NTU Fecal coliform - median of no detectable colonies/100 ml over continuous, running 7-day sampling periods, not to exceed 14/100 ml or 200/100 ml TSS - 5 mg/l or 10 mg/l Class I Groundwater Permit Standards (SDWA Drinking Water Standards)	Turbidity - continuous Fecal coliform - daily or twice per week Metals - quarterly TSS - weekly or twice per week Nitrogen - once or twice per week MS-2 phage - quarterly Total culturable viruses - quarterly Variable testing requirements UV intensity or chlorine residual - daily	be required Two independent and separate sources of power Unit redundancy Additional storage	alternatives are required for emergency situations		must accomplish the following goals: Evaluates upgradient (background) groundwater quality Evaluates the performance of land use components that are considered part of the treatment process Evaluates the overall impact of the project on local groundwater quality Acts as an early warning system between the discharge and sensitive receptors	the Zone I of any public water supply well defined as the area encompassing a maximum 400-foot radius around the wellhead (assuming a greater than 100,000 gpd withdrawal rate) • Discharging to Zone IIs, defined as the entire extent of the aquifer deposits which could fall within and upgradient from the production well's capture zone based on the predicted drawdown after 180-day drought conditions at the approved pumping rate, will be permitted in circumstances where it is	recharge areas as defined by Zone II boundaries of community water systems and groundwater discharges that will recharge reservoirs or tributaries to reservoirs New treatment plants located in approved Zone IIs with less than a 2 year groundwater travel time to the public water supply well must treat to the more rigorous of the two standards described Existing treatment plants that can demonstrate 4 or 5 feet of separation and where the well has not shown any evidence of water quality

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Table A-10. Indirect Potable Reuse

State	Reclaimed Water Quality and Treatment Requirements	Reclaimed Water Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances necessary to replenish streamflow, enhance the productivity and capacity of an aquifer, and/or improve upon or mitigate poor existing environmental conditions	Other degradation may maintain the lesser standard
Washington	Oxidized, coagulated, filtered, reverse-osmosis treated and disinfected Total coliform - 1/100 ml (7-day median) - 5/100 ml (single sample) 5 mg/l BOD and TSS (7-day mean) Turbidity - 0.1 NTU (monthly mean) - 0.5 NTU (maximum) Total nitrogen - 10 mg/l as N (annual mean) TOC - 1.0 mg/l	Point of compliance is the point of direct recharge of reclaimed water into the underground BOD – 24-hour composite samples collected at least daily TSS - 24 hour composite samples collected at least daily Total coliform - grab samples collected at least daily and at a time when wastewater	Warning alarms independent of normal power supply Back-up power source Emergency storage: short-term, 1 day; long-term, 20 days Multiple treatment units or storage or disposal options Qualified personnel available or on call at all times the system is operating	Storage required when no approved alternative disposal system exists Storage volume established by determining storage period required for duration of a 10-year storm, using a minimum of 20 years of climatic data At a minimum, system storage capacity should be the volume equal to 3 times that		Will be required and based on reclaimed water quality and quantity, site specific soil and hydrogeologic characteristics and other considerations For direct recharge into potable groundwater aquifers, monitoring wells, at a minimum, shall be located at points 500 feet and 1,000 feet (plus or minus	The minimum horizontal separation distance between the point of direct recharge and withdrawal as a source of drinking water supply shall be 2,000 feet	Defined as direct recharge to potable groundwater aquifers Reclaimed water shall be retained underground for a minimum of 12 months prior to being withdrawn as a source of drinking water supply Project evaluation based on all relevant aspects of each project, including treatment and

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.

Table A-10. Indirect Potable Reuse

	Reclaimed Water Quality and	Reclaimed Water	Tuestassat	Chausas	l a a diin a	Consum discrete	Cathanal	
State	Treatment Requirements	Monitoring Requirements	Treatment Facility Reliability	Storage Requirements	Loading Rates	Groundwater Monitoring	Setback Distances	Other
Otato	(monthly mean)	characteristics	T domey Frondomey	portion of the	Tidios	10 percent)	Distarioes	treatment
	Water quality	are most		average daily		along the		reliability
	criteria for	demanding on		flow for which		groundwater		provided,
	primary	the treatment		no alternative		flow path from		reclaimed
	contaminants	facilities and		reuse or		the point of		water quality
	(except nitrate),	disinfection		disposal		recharge to the		and quantity,
	secondary	procedures		system is		nearest point		use or
	contaminants,	Continuous		permitted		of withdrawal		potential use of
	radionuclides	on-line				of groundwater		groundwater,
	and	monitoring of				used as a		operation and
	carcinogens	turbidity and				source of		management
	listed in Table 1	chlorine				drinking water		of the recharge
	in Chapter 173-	residual				supply		facilities, soil
	200 WAC and	• TOC - 24-hour				Groundwater		characteristics,
	any other	composite				shall be		hydrogeology,
	maximum	samples				sampled for		residence time
	contaminant	collected at				TOC and		of the reclaimed
	levels pursuant to Chapter 246-	least daily Primary				primary		water in the
	290 WAC must	contaminants				contaminants, secondary		underground
	be met	(except total				contaminants.		prior to
	Minimum	coliform				radionuclides,		withdrawal and
	chlorine	organisms),				and		distance from
	residual of	secondary				carcinogens		the recharge
	1 mg/l after a	contaminants,				listed in Table		area to nearest
	contact time of	radionuclides,				1 in Chapter		point of
	30 minutes	and				173-200 WAC		withdrawal
	based on peak	carcinogens -				Samples from		A pilot plant
	hourly flow	24-hour				monitoring		study shall be
	A chlorine	composite				wells shall be		performed
	residual of at	samples				collected at		prior to
	least 0.5 mg/l to	collected at				least quarterly		implementation
	be maintained	least quarterly						of direct
	in the reclaimed	Total nitrogen						recharge into a
	water during	- grab or						potable
	conveyance to	24-hour						groundwater
	the point of	composite						aquifer
	recharge	samples						

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Table A-10. Indirect Potable Reuse

	Reclaimed Water Quality and	Reclaimed Water						
0	Treatment	Monitoring	Treatment	Storage	Loading	Groundwater	Setback	
State	Requirements	Requirements	Facility Reliability	Requirements	Rates	Monitoring	Distances	Other
		collected at						
		least weekly						

⁽¹⁾ Distances are from edge of wetted perimeter unless otherwise noted.